ORDER NO. HAD8712332C9

Service Manual

COMPACT disc DIGITAL AUDIO

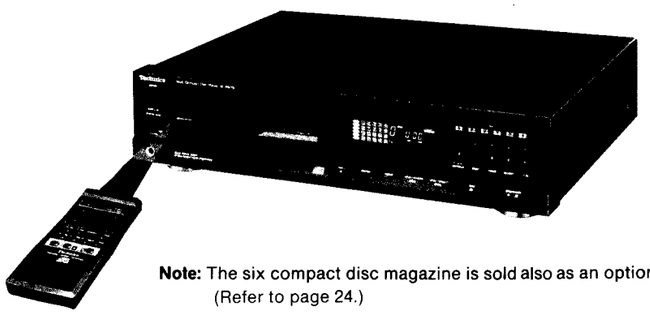
DIGITAL

Multi Compact Disc Player

SL-P600C

Color

(K) .... Black Type



Note: The six compact disc magazine is sold also as an option.
(Refer to page 24.)

Area

Color	Area
(K)	[E] ..... Continental Europe.
(K)	[Ei] ..... Italy.
(K)	[EG] ... F.R.Germany.
(K)	[EB] .... Belgium.
(K)	[EK] .... United Kingdom.
(K)	[EF] .... France.
(K)	[EH] .... Holland.
(K)	[XL] .... Australia.
(K)	[XA] .... Asia, Latin America, Middle Near East, Africa and Oceania.
(K)	[PA] .... Far East PX.
(K)	[PE] .... European Military.
(K)	[PC] .... European Audio Club.
(K)	[XB] .... Saudi Arabia.

SPECIFICATIONS (Measured by EIAJ (CP307))

■ Audio

No. of channels: 2 (left and right, stereo)
Frequency response: 2~20,000 Hz (±0.5 dB)
Dynamic range: 93 dB (EIAJ)
S/N ratio: 96 dB (EIAJ)
Total harmonic distortion: 0.006% (1 kHz, 0 dB) (EIAJ)
Harmonic distortion: 0.003% (1 kHz, 0 dB) (EIAJ)
Wow and flutter: Below measurable limit
Digital filter: 4× oversampling (176.4 kHz)

■ Signal Format

Sampling frequency: 44.1 kHz
D-A conversion: 16-bit linear

■ Pickup

Light source: Semiconductor laser
Wavelength: 780 nm

■ Headphones:

Output level: 15 mW max. (variable)
Impedance: 32 Ω
Plug: 1/4 inch stereo

■ Infrared remote control unit

Dimensions (W×D×H): 6.4×15.5×1.8 cm (2-9/16"×6-3/32"×23/32")
Batteries: UM-3 "AA" batteries or IEC R6 or equivalent (1.5 V×2)
Weight: 140 g (0.3 lbs.) (including batteries)

■ Functions

Type: Multi Compact Disc Player
Play mode:
- Six compact disc (magazine)
- Continuous play
- Program play (up to 36 selections)
- Random play
- Repeat play
- Skip play
- Search play

Display:
- Numerical display:
  time (min. sec.)
  disc (disc number)
  track (track number)
  step (programmed order)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
6th Floor, World Trade Center Bldg.,
No. 4-1, Hamamatsu-cho 2-Chome, Minato-ku,
Tokyo 105, Japan

SL-P600C

■ General

Power supply: For United Kingdom and Australia: AC 240V, 50Hz
For Continental Europe: AC 220V, 50Hz
For others: AC 110~127/220~240V, 50/60Hz
Power consumption: 15 W
Output voltage: 2 V (at 0 dB) (EIAJ)

Dimensions (W×D×H): 43×31.5×10.25 cm (16-15/16"×12-13/32"×4-1/32")
Weight: 5.8 kg (12.8 lbs.)

Specifications are subject to change without notice.
Weight and dimensions are approximate.

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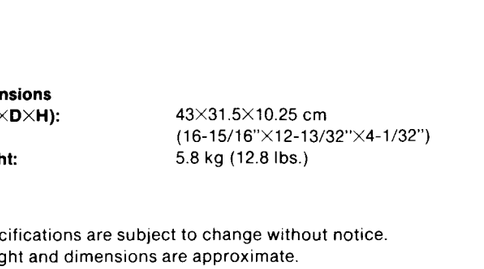
■ PRECAUTION OF LASER DIODE

Caution: This product utilizes a laser diode
ADVARSEL: I dette a apparat anvendes laser.
- **Caution labels are used for the areas except [PA], [PE] and [PC] areas.**



Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

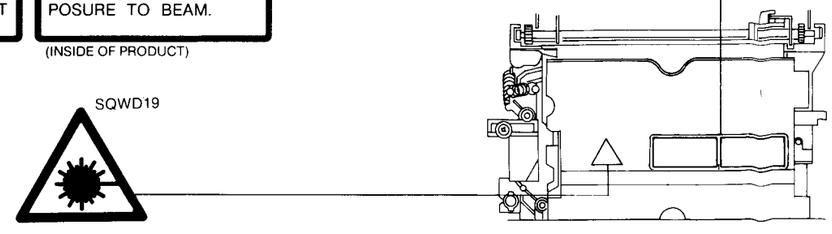
(For DENMARK only)

ADVARSEL-Der vil udstråles osynlig laserbestråling når apparatet åbnes og aflåsningsmekanismen frigøres. UNDGÅ AT BLIVE UDSET FOR LASERBESTRÅLING.
(Indersiden af apparatet)

SQWD46

DANGER-Invisible laser radiation when open and Interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.
(INSIDE OF PRODUCT)

SQWD19

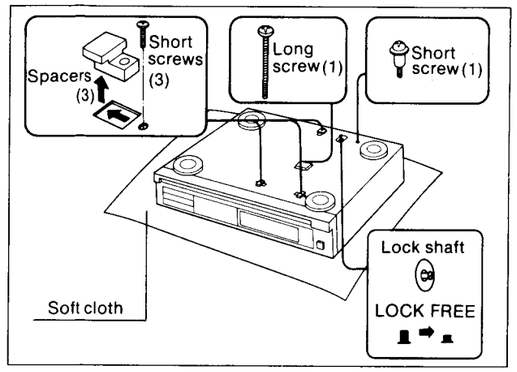


VAROITUS! Laite sisältää laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilya

■ BEFORE USING THIS UNIT

Be sure to follow these steps before placement or connection.

1. Place a soft cloth under the unit.
2. Using a screwdriver, remove the long blue screw, the short blue screw, the three short blue screws and the three plastic spacers.
3. Press the lock shaft of the laser pick-up to the IN (free) position.



IMPORTANT NOTE REGARDING TRANSPORTING THIS UNIT

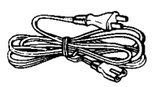
- Save the screws and spacers in the bag provided.
- Attach the bag to the rear of the unit using the fastener included.

■ **TO PREVENT DAMAGE TO THE UNIT DURING TRANSPORTATION, THE DISC ELEVATION MECHANISM MUST BE SECURED AS FOLLOWS:**

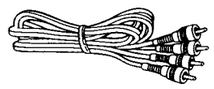
1) Start play once, and then PRESS THE STOP BUTTON to return the disc elevation mechanism to the lower position. (When the disc elevation mechanism is in the upper position, it is impossible to secure it with screws.)
2) Remove the magazine.
3) Switch OFF the power and unplug the power cord.
4) Install the three short screws with spacers, the one long screw and the one short screw.
5) Pull the lock shaft to the OUT (locked) position.

■ ACCESSORIES

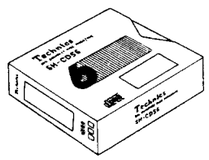
- **Power cord.....1**
  SFDAC05E03 .....For [E], [EG], [EB], [EH], [EF], [Ei]
  SJA168-1 .....For [XA], [PA], [PE], [PC]
  SJA183 .....For [XB]
  SJA173 ..... For [XL]
  SFDAC05G02 ..... For [EK]



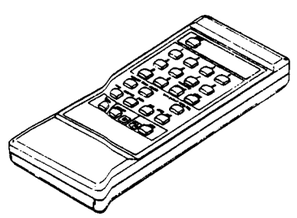
- **Stereo connection cable.....1**
  SJP2249-1



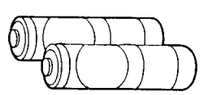
- **6 discs magazine.....1**
  SHRD141-Z .....For [E], [EK], [XL], [EG], [EB], [EH], [Ei], [EF]
  SHRD154-Z .....For [XA], [XB], [PA], [PE], [PC]



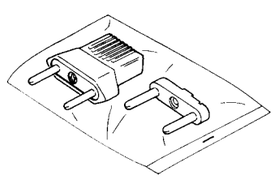
- **Remote control unit.....1**
  EUR64560



- **Batteries.....2**
  UM-3NEP

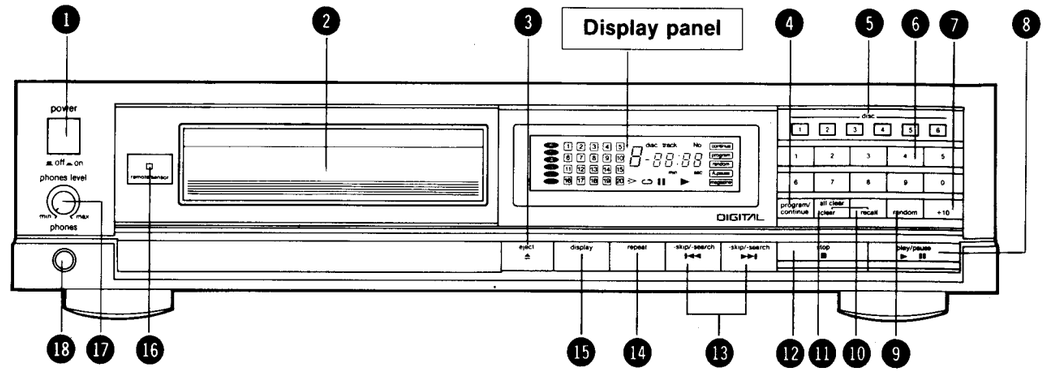


- **Change plug.....1**
  SJP9215 .....For [XA], [XB], [PA], [PE], [PC]



■ FRONT PANEL CONTROLS AND FUNCTIONS

Front panel



1 Power switch
Press (▙ → ▟) to switch the power on.
Press again (▟ → ▙) to switch the power off.

2 Magazine compartment
Insert the magazine into this compartment. Push the magazine in until it clicks into place. Be sure to only use the specified type of magazine.

3 Eject button
Press this button to eject the magazine. If this button is pressed during play, play will automatically stop and the magazine will slide out.
Remove the magazine from the unit.
Note:
This button does not function when the power is off.

4 Program/continue button
This button is used to select either continuous play or program play.
The selection changes each time the button is pressed and the selected mode is indicated.
Note:
Continuous play is automatically selected when the power is switched on or when a magazine is inserted.

5 Disc select buttons/indicators (disc, 1 ~ 6)
These buttons are used to select a disc for continuous play or program play.
The corresponding button will illuminate GREEN if there is a disc in the magazine tray, and will illuminate ORANGE when the disc is being played.

6 Track select buttons (1 ~ 0)
These buttons are used to select the track (continuous play or program play).

7 +10 button
This button is used (to select the first digit of the track number) if track number ten or higher is selected.

8 Play/pause button
This button activates either play or pause, depending on the operating mode of the unit.
- If the button is pressed while the unit is in the stop mode or in the pause mode, play begins and the play indicator illuminates.
- If the button is pressed during play, the unit goes to the pause mode, and the pause indicator illuminates.

Pause mode:
The disc rotates while the unit is in the pause mode.

9 Random button
Press this button to let the microcomputer make a random selection of the sequence in which discs and tracks are played during continuous play or program play.
Press the button again to cancel the random play mode.

10 Recall button
Press this button to confirm the contents of a program (programmed order, disc and track numbers). When this button is pressed, the programmed contents are displayed in the numerical display section for a few seconds. This confirmation is possible only when the unit is in the program mode (the program indicator is illuminated).

11 Clear button
Press this button to clear individual program entries before program play is started.
If this button and the recall button are pressed at the same time, all programmed tracks will be cancelled.

12 Stop button
Press this button to stop disc play, return the disc to the magazine, and enter the stop mode.

13 Backward and forward skip/search buttons
Press one of these buttons briefly to move the pickup to the beginning of a specific track; press and hold it for fast-advance or fast-reverse play.

Pickup:
The pickup is a laser device that reads the information on the disc surface. The pickup moves across the disc as the disc is played, but it is not visible from outside the cabinet.

⑭ Repeat button
Press this button to activate the repeat mode. The repeat indicator illuminates.
Press again to cancel the repeat mode. The repeat indicator goes out.

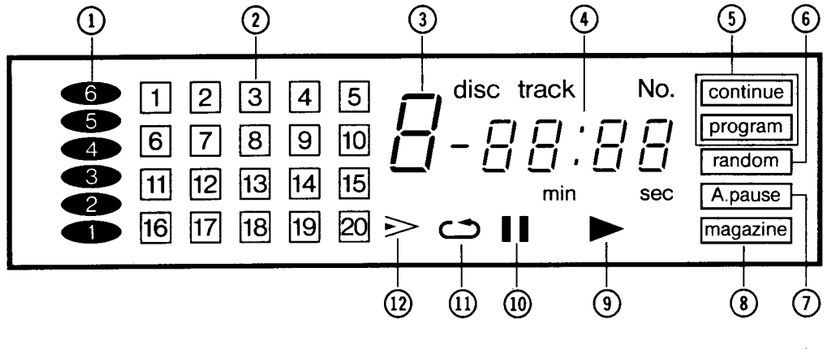
⑮ Display select button
Each time this button is pressed during play or when in the pause mode the display mode changes.

⑯ Remote control sensor
Receives signals from the infrared remote control unit.

⑰ Phones level control knob
Use to control the output level to the headphones.

⑱ Headphones jack
Connect the optional headphones plug to this jack. When listening to music with stereo headphones, avoid listening for prolonged periods of time. Hearing experts advise against continuous extended play.

Display panel



① Disc indicators (1 ~ 6)
These indicators illuminate if there is a disc(s) in the disc tray, and the indicator corresponding to the disc being played flashes during play.

② Music matrix (1 ~ 20)
During disc play, the number corresponding to the track being played flashes, and the numbers for those tracks that have finished playing stop flashing.
When the music matrix indication (□) moves to the right repeatedly, this means that the mechanism is in operation (due to disc change, etc.).
During random selection, the music matrix indication (□) flashes randomly.

③ Disc-number display (disc)
This display shows the actual disc number (1~6.)

④ Track number/time display (track no., min., sec.)
This display shows the elapsed playing time of the track being played; by pressing the display select button, the track number being played and other data can be displayed. When the unit is programmed, this display shows the track number and programmed sequence of tracks.

⑤ Play mode indicators (continue , program)
Continue:
This indicator illuminates when the unit is in the continuous mode. This indicator also illuminates when the power is switched on and when a magazine is inserted.

Program:
This indicator illuminates when the unit is in the programming or program play mode.

⑥ Random indicator (random)
Illuminates when random play is activated and goes out when random play is stopped.

⑦ Auto pause indicator (A.pause)
Illuminates when the auto pause mode is activated and goes out when the auto pause mode is cancelled.

⑧ Magazine indicator (magazine)
Illuminates when there is a magazine in the magazine compartment.

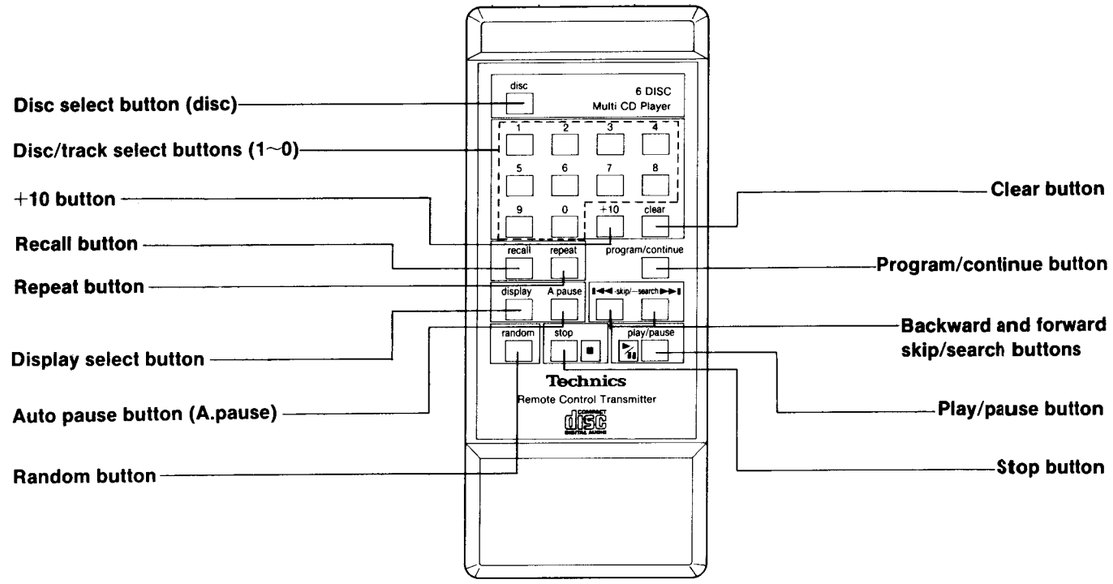
⑨ Play indicator (►)
Illuminates when the play mode is activated and goes out when play is stopped.

⑩ Pause indicator (▮▮)
Illuminates when the pause mode is activated and goes out when the pause mode is cancelled.

⑪ Repeat indicator (↻)
Illuminates when the repeat mode is activated and goes out when the repeat mode is cancelled.

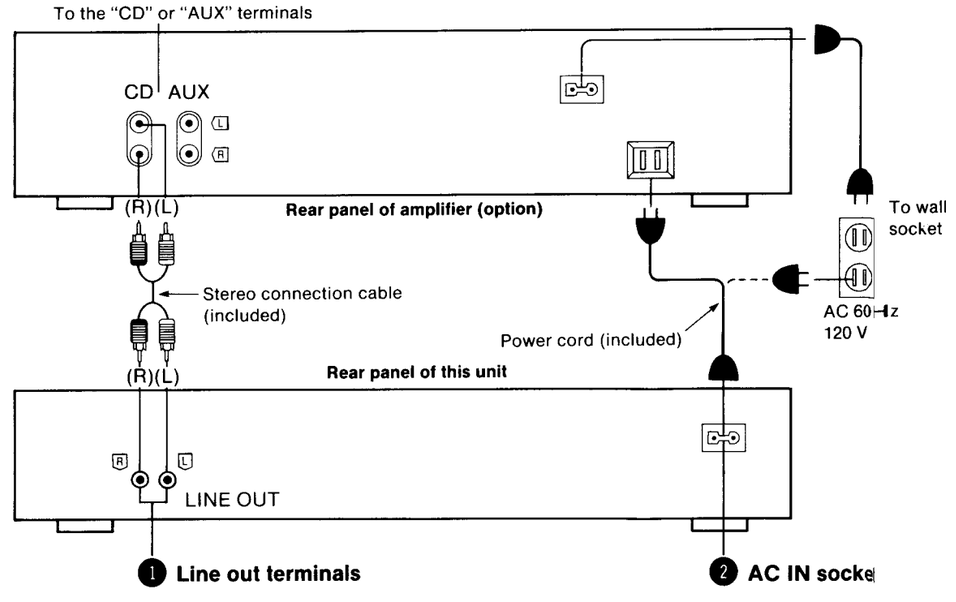
⑫ Overflow indicator (➤)
The (➤) indicator illuminates when a disc containing more than 20 tracks is loaded. When disc play is started, the (►) indicator illuminates instead and when disc play reaches track 21, the (>) indicator flashes on and off.
- During programming and program play, the (►) indicator will illuminate if the disc contains more than 20 tracks. When a track number higher than 20 is played, the (>) indicator will flash on and off.

Remote control (EUR64559)



■ CONNECTIONS

1. Make sure your hands are dry when making connections.
2. Turn power off to all components before making connections.
3. Make all connections firmly.
4. Be sure to read the operating instructions for all units connected.

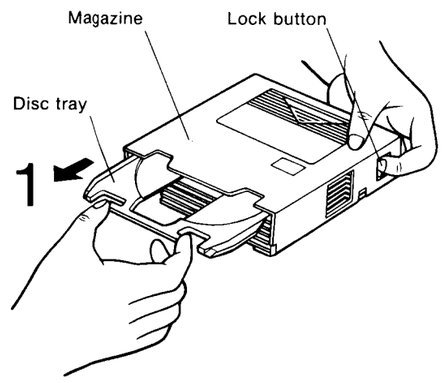


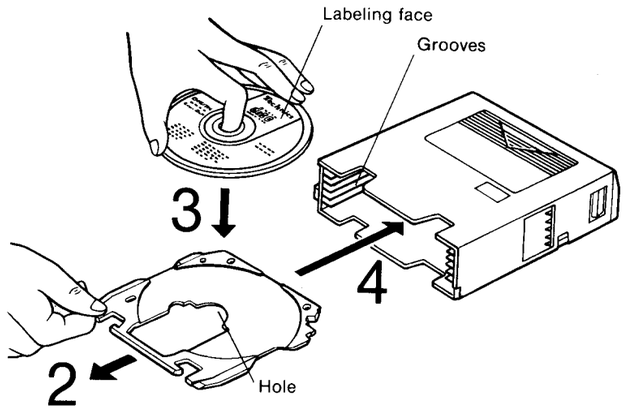
① Line out terminals (LINE OUT)
These are the audio output terminals.
- Connect the LINE OUT terminals to the CD, AUX or TAPE PLAYBACK terminals on your amplifier or receiver.
- Do not connect the LINE OUT terminals to the PHONO terminals of your amplifier or receiver.

② AC IN socket (∿ AC IN)
Connect to an AC outlet on the wall or on the rear panel of your amplifier or receiver.

■ INSERTING DISCS IN THE MAGAZINE

Preparing the six compact disc magazine





1. While pressing the lock button, pull the disc tray slightly outward.

2. To avoid dropping the disc hold the edge of the disc tray. Then pull out.

3. With the disc's label facing upward, place it on the disc tray.

4. Align the disc tray with the left and right grooves of the magazine and push all the way in.

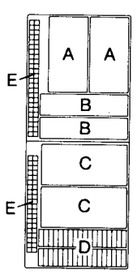
Notes:

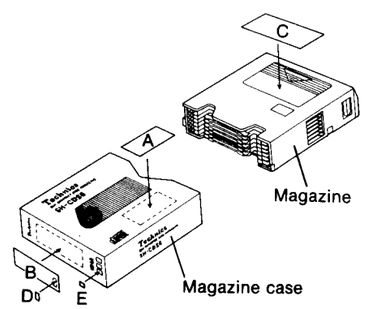
- Be sure to insert all six trays into the magazine to prevent malfunction. This will prevent crooked insertion of a tray into the magazine, resulting in damage to the disc elevation mechanism.
- When specifying a disc number, the disc at the bottom of the magazine is number 1, the next is 2, etc. to 6. Discs can be inserted more easily if inserted in sequence from the lowermost first.
- Be careful not to drop the disc trays or the discs.
- Do not bend the disc trays.
- Never place anything other than discs in the trays, and never insert anything other than the magazine into the magazine slot.
- To prevent dust and dirt from adhering to the discs, be sure to store the magazine in its case when not in use.

Labeling the magazine

Be sure to put the labels provided in the designated places only. Placement of the labels or adhesive tape in the wrong place may cause a malfunction.

Note:
When labeling the magazine, never put labels on top of each other.

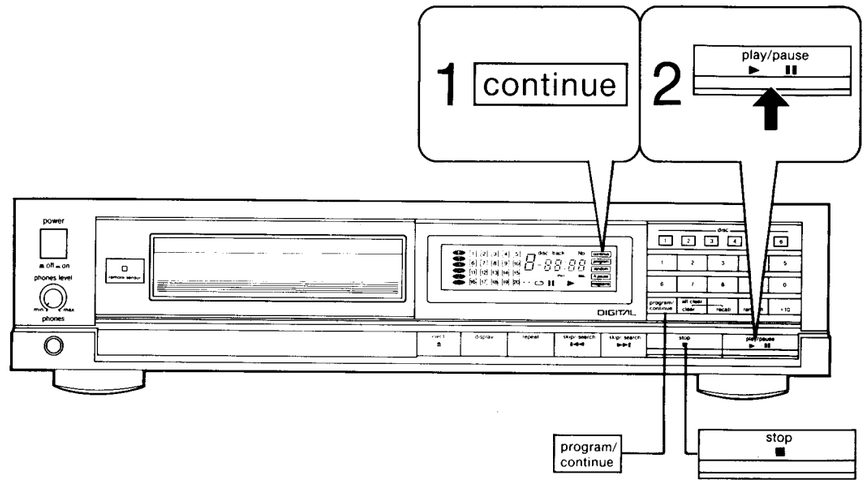




■ PLAYING A DISC

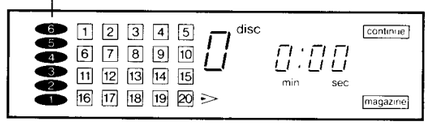
Continuous play

Continuous play is the sequential play of all tracks on all discs in the magazine; for example, the continuous play from the first track on the first disc to the final track on the sixth disc (if six discs are in the magazine).



1 Check to be sure that the continue indicator is illuminated.

If the indicator is not illuminated, press the program/continue button. (See below.)



■ To select continuous play or program play...

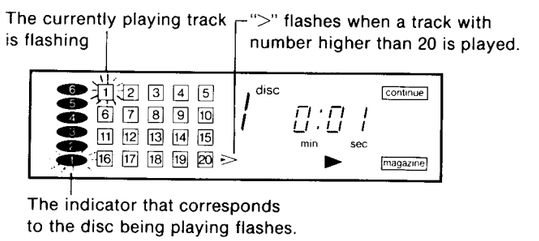
1. Press the stop button.
2. Press the program/continue button.
   The play mode will then change from continuous play to program play, or vice versa, and the respective indicator will illuminate to indicate that change.

The mode does not change if the program/continue button is pressed during play.

Note:
When the unit power is switched ON, and when a disc magazine is inserted, the continue indicator will illuminate, and the play mode will change to continuous play.

2 Press the play/pause button.

The play indicator will illuminate and continuous play will start.


The currently playing track is flashing
">" flashes when a track with number higher than 20 is played.
disc
continue
min
sec
magazine
The indicator that corresponds to the disc being playing flashes.

When the end of the last disc is played, the unit switches to the stop mode.

■ To briefly interrupt play

Press the play/pause button to briefly interrupt play.
The unit switches to the pause mode and the pause indicator (▮▮) illuminates.

- **Press the play/pause button again to resume play.**

The pause mode is cancelled, play is resumed, and the play indicator illuminates.

■ To stop play

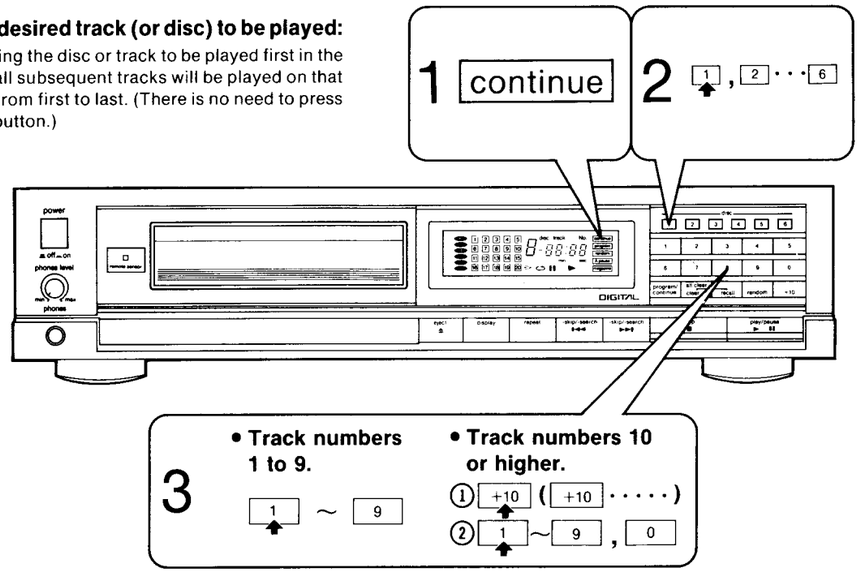
Press the stop button.
The disc is returned to the magazine and the unit goes to the stop mode.

■ When not in use

Turn off the power.

Direct access play

To select the desired track (or disc) to be played:
By simply selecting the disc or track to be played first in the play sequence, all subsequent tracks will be played on that disc(s) in order from first to last. (There is no need to press the play/pause button.)



1 Check to be sure that the continue indicator is illuminated.

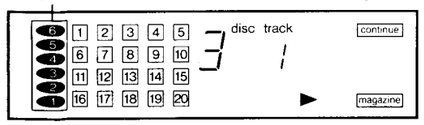
If the indicator is not illuminated, press the program/continue button.

2 Press the disc select button.

The green illumination will change to orange.

For example: To select the 3rd disc in the magazine.

Indicators illuminate for each disc in the magazine.



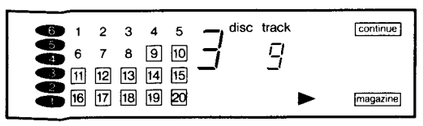
(The illustration above shows that disc select button 3 is pressed.)

Note:
If the disc only is selected, play of all tracks on that disc (beginning from its first track) will begin in about ten seconds.

3 Press the track select button.

Play will start.

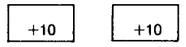
To select track number 1 to 9:
For example: To select the 9th track.



•To select track number 10 or higher:

① Press the +10 button the necessary number of times.
② Press the track select button.

For example: To select the 20th track:
① Press the +10 button two times.

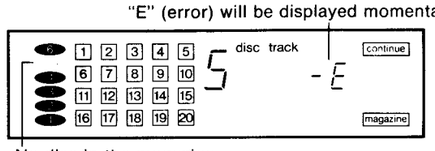


The track number display changes:

② Press the "0" button. 0

Note:
When a disc number not in the magazine or a track number not on the disc is specified, "E" will be displayed, and the selection can not be entered.
Note, however, that if the selected disc is one which has not been played before, a track number not on the disc can be entered in the program and "E" will not be displayed because the number of tracks on the disc is not in the memory.
- If a track number not on the disc is specified, play will begin from the first track on the specified disc.
- If a track number not on the disc currently playing is specified, play will continue uninterrupted.

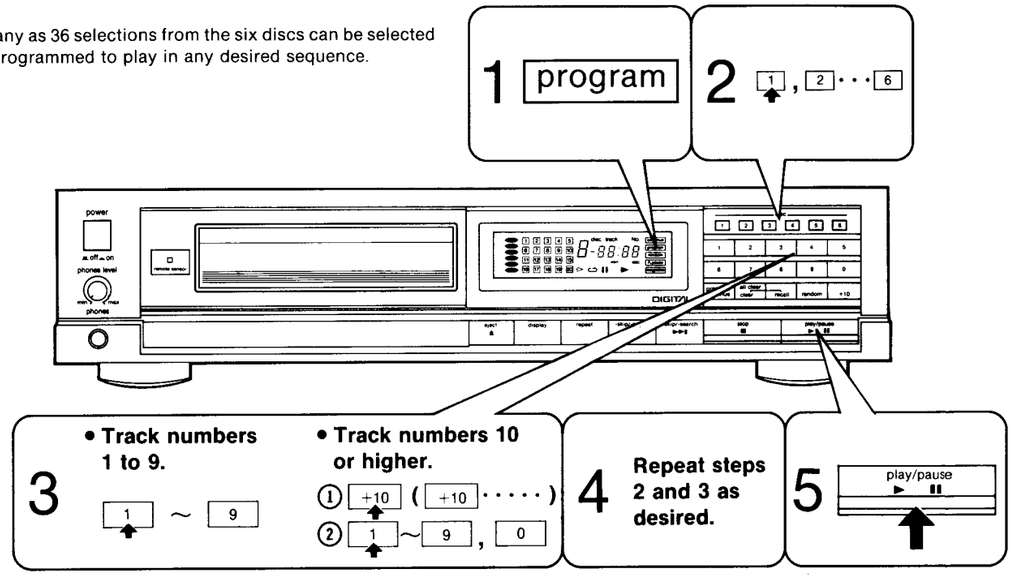
"E" (error) will be displayed momentarily.



No disc in the magazine

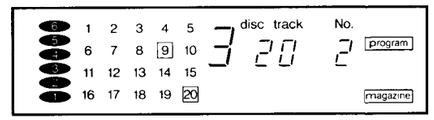
Program play

As many as 36 selections from the six discs can be selected and programmed to play in any desired sequence.



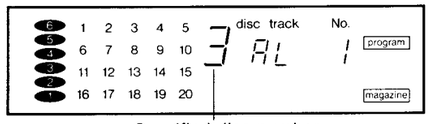
1 Check to be sure that the program indicator is illuminated.

If the indicator is not illuminated, press the program/continue button. (See page 9.)



2 Press the disc select button.

For example: To select the 3rd disc in the magazine.

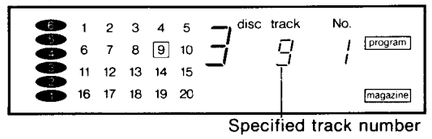


Specified disc number

Note:
If the disc only is selected, all tracks on that disc (beginning from its first track) will be played.

3 Press the track select button.

•To select track number 1 to 9:
For example: To select the 9th track.



Specified track number

•To select track number 10 or higher:

① Press the +10 button the necessary number of times.
② Press the track select button.

For example: To select the 20th track:
① Press the +10 button two times.

Track number display changes:

② Press the "0" button. 0

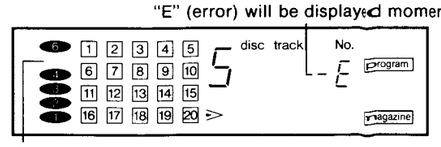
4 Repeat steps 2 and 3 until the desired programming is completed.

5 Press the play/pause button.

The program play will start.

Notes:
1. It is not necessary to select the disc number if the next track selected is on the same disc.
2. When a disc number not in the magazine or a track number not on the disc is specified, "E" will be displayed and the selection will not be programmed.
   (Note, however, that if the selected disc is one which has not been played before, a track number not on the disc can be entered in the program and "E" will not be displayed because the number of tracks on the disc is not in the memory. But the specified track will, of course, not be played.)

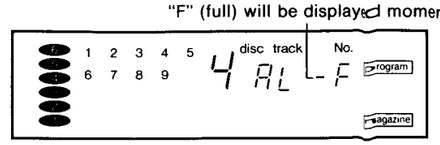
"E" (error) will be displayed momentarily.



No disc in the magazine

3. A 37th track selection is not accepted.

"F" (full) will be displayed momentarily.



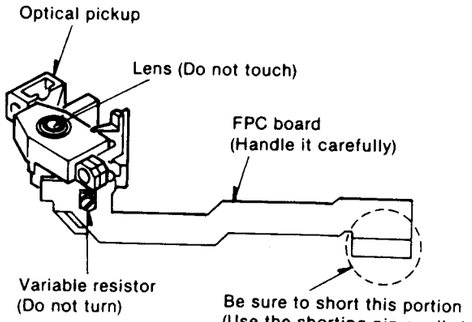
4. Additional programming is possible during program play by following steps 2 and 3.
   (The display will return to the original display about 20 seconds after the additional programming is finished.)

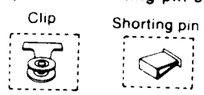
■ HANDLING PRECAUTIONS FOR OPTICAL PICKUP

The laser diode in the optical pickup may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the optical pickup.

• Handling of optical pickup

1. Do not give excessive shock to the optical pickup because it is of extremely precise structure.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board. **(FPC board)**
   When removing or connecting the shorting pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board. **(FPC board)**
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

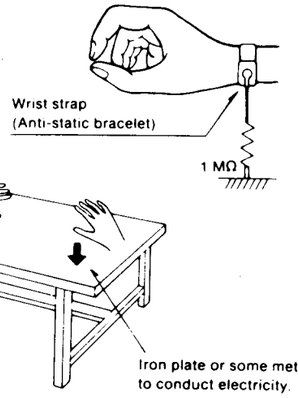




• Grounding for electrostatic breakdown prevention

1 Human body grounding
Use the anti-static wrist strap to relieve the static electricity from your body.
2. Work table grounding
Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

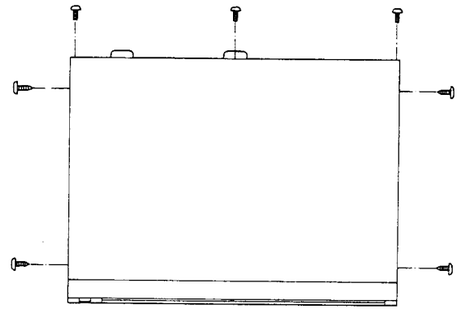
Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.



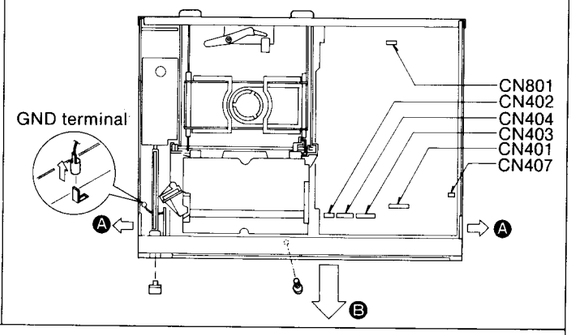
■ DISASSEMBLY INSTRUCTIONS

CAUTION:
- It is very dangerous to look at or touch laser radiation. (Laser radiation is invisible.)
- With the unit turned "on", laser radiation is emitted from the pickup lens.
- When removing the cabinet and the disc clamper of this unit, be sure to turn the power supply off.

Ref. No. 1	How to remove the cabinet
Procedure 1	• Remove the 7 screws.



Ref. No. 2	How to remove the front panel
Procedure 1 ➧ 2	1. Pull off the power button and the headphones P.C.B. GND terminal. 2. Pull out the 6 connectors (CN401~404, CN407 and CN801). 3. Remove the screw. 4. Slightly pull the tabs outward (arrows Ⓐ). 5. Remove the front panel in the direction of the arrow Ⓑ.

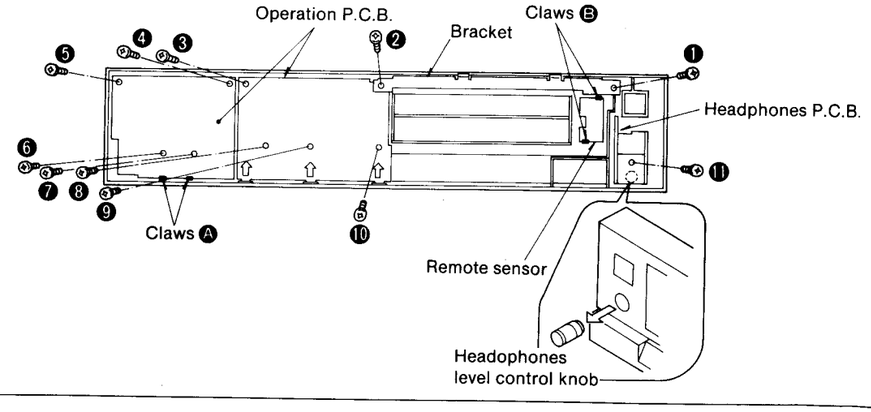


Ref. No. 3	How to remove the operation P.C.B., the headphones P.C.B. and the remote sensor
Procedure 1 ➧ 2 ➧ 3	

A. How to remove the operation P.C.B.
1. Remove the 2 screws (❶, ❷) and remove the bracket.
2. Remove the 8 screws (❸~❿).
3. Release the 2 claws Ⓐ.
4. Remove in the direction of the arrows and release the operation P.C.B. from the front panel.

B. How to remove the headphones P.C.B.
1. Pull off the headphones level control knob.
2. Remove the screw ⓫.

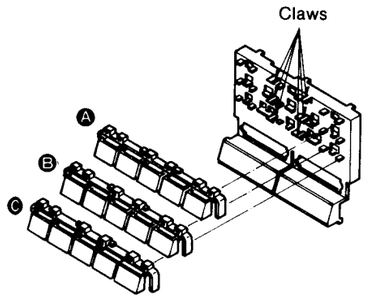
C. How to remove the remote sensor.
- Release the 2 claws Ⓑ.



Ref. No. 4 — How to remove the numeric buttons

Procedure 1 ➧ 2 ➧ 3 ➧ 4

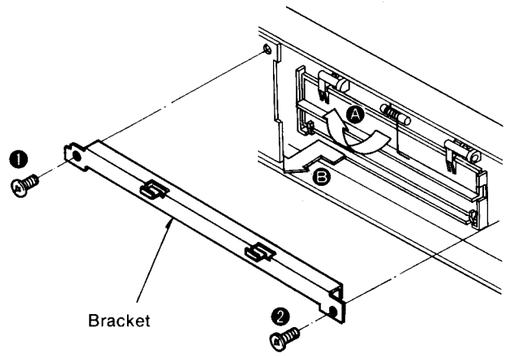
1. Release the 2 claws for the button Ⓐ and remove it.
2. Remove the button Ⓑ in the same way, then button Ⓒ.



Ref. No. 5 — How to remove the magazine compartment cover

Procedure 1 ➧ 2 ➧ 5

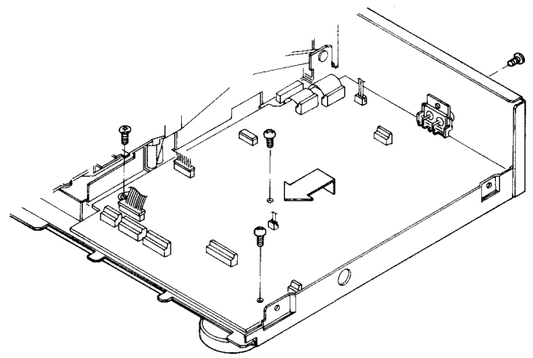
1. Remove the 2 screws (❶, ❷) and remove the bracket.
2. Open the cover in the direction of the arrow Ⓐ.
3. Remove in the direction of the arrow Ⓑ.



Ref. No. 6 — How to remove the main P.C.B.

Procedure 1 ➧ 2 ➧ 6

1. Remove the 4 screws.
2. Remove in the direction of the arrow.

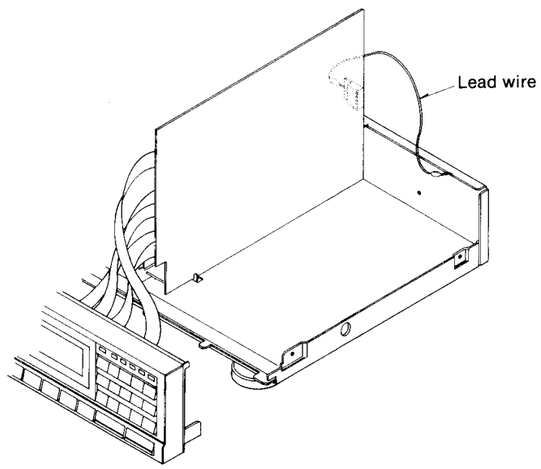


To check the solder side of the main P.C.B. and replace parts.

- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown.

1. Remove the main P.C.B.
2. Place the main P.C.B. on the chassis as shown in the figure and reconnect CN401~404, CN407 and CN801.

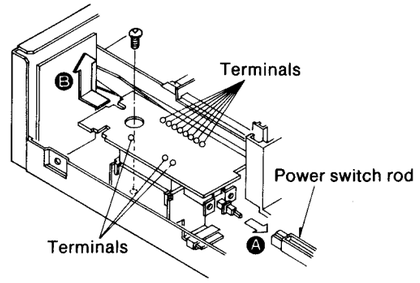
Caution: Be sure to connect the main P.C.B. ground terminal to the chassis with a lead wire.



Ref. No. 7 — How to remove the power transformer

Procedure 1 ➧ 7

1. Remove the power switch rod. (arrow Ⓐ)
2. Remove the screw.
3. Remove in the direction of the arrow Ⓑ.
4. Unsolder the terminals to separate the power transformer from the P.C.B.

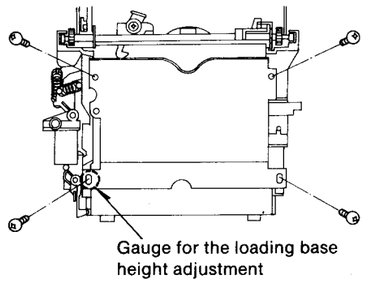


Ref. No. 8 — How to remove the magazine base cover

Procedure 1 ➧ 2 ➧ 8

- Remove the 4 screws.

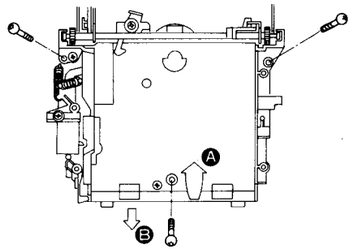
Note: This magazine base cover can be used as a gauge for the loading base height adjustment.



Ref. No. 9 — How to remove the magazine base

Procedure 1 ➧ 2 ➧ 9

1. Remove the 3 screws.
2. Lift up the magazine base in the direction of the arrow Ⓐ.
3. Remove in the direction of the arrow Ⓑ.

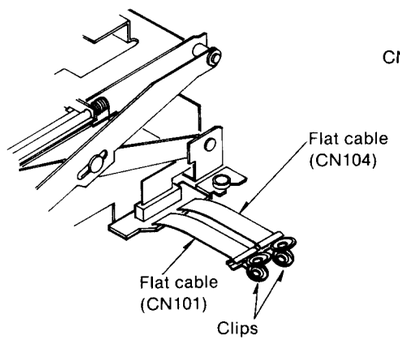


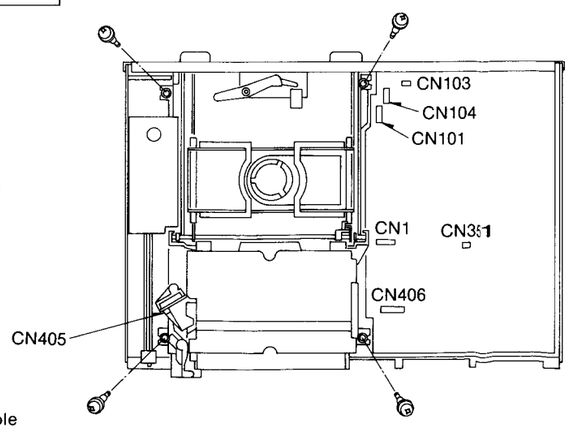
Ref. No. 10 — How to remove the elevator unit

Procedure 1 ➧ 2 ➧ 10

1. Remove the 4 screws.
2. Pull out the 5 connectors (CN1, CN103, CN351, CN405 and CN 406).
3. Pull out the 2 flat cables (CN101 and CN104).

Caution: Short circuit the 2 flat cables (CN101 and CN104) in order to prevent breakdown of the laser diode as shown in the figure below. (Short flat cables with a clip.)



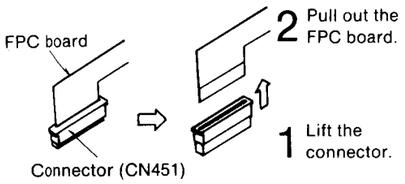


Ref. No. 11	How to remove the optical pickup and traverse base
Procedure 1➧2➧9➧11	

A. How to remove the optical pickup.

1. Turn the elevating gear clockwise to raise the loading unit to the top of the elevating gear.
2. Push the bottom gear levers in so they are freed from the elevator base. (Arrows Ⓐ)
3. Tilt entire loading mechanism forward. (Arrow Ⓑ)
4. Remove the FPC board (CN451).

Caution: Short the FPC cables with a clip in order to prevent breakdown of the laser diode. (See page 11.)



Refer to "HANDLING PRECAUTIONS FOR OPTICAL PICKUP" on page 11.

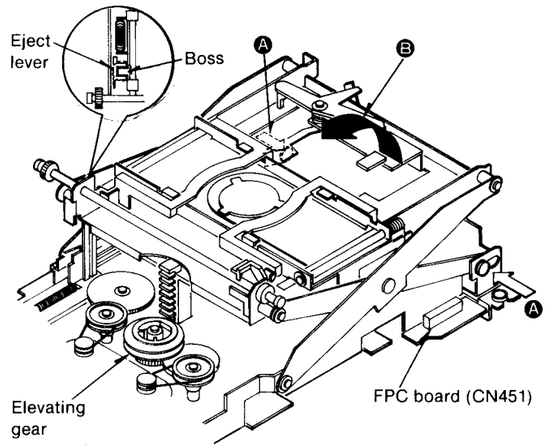
5. Remove the 2 screws (❶ and ❷).
6. Remove the resistance unit.
7. Remove the 2 screws (❸ and ❹) and unsolder the 2 terminals.
8. Remove the 4 screws (❺~❽).
9. Slide the optical pickup off the 2 guide shafts.

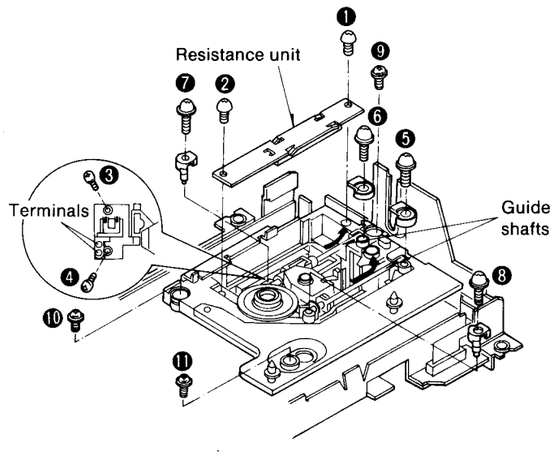
B. How to remove the traverse unit.

- Remove the 3 screws (❾~⓫).

Caution for assembly:

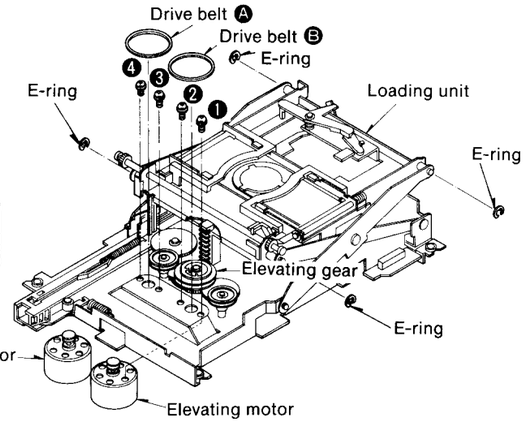
- Align the boss of the loading mechanism with the groove of the eject lever.





Ref. No. 12	How to remove the loading unit
Procedure 1➧2➧9➧12	

1. Turn the elevating gear clockwise to raise the loading unit to the top of the elevating gear.
2. Remove the 4 E-rings.



Ref. No. 13	How to remove the elevating and loading motors
Procedure 1➧2➧9➧10➧13	

A. How to remove the elevating motor.

1. Remove the drive belt Ⓐ.
2. Remove the 2 screws (❶ and ❷).

B. How to remove the loading motor.

1. Remove the drive belt Ⓑ.
2. Remove the 2 screws (❸ and ❹).

Ref. No. 14	How to remove the spindle motor
Procedure 1➧2➧9➧10➧14	

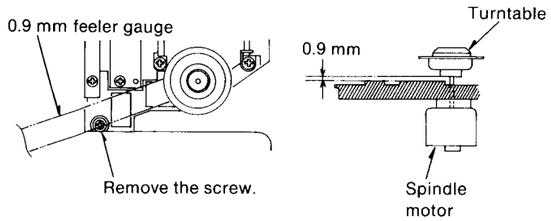
1. Loosen the screw ❶ by using a 1.27 mm hexagonal wrench and remove the turntable.
2. Remove the 2 screws (❷, ❸).
3. Unsolder the 2 terminals of the spindle motor.

Caution:

1. Turntable height adjustment is necessary any time the turntable or spindle motor is replaced.
2. The (+) terminal of the spindle motor is indicated by the red mark.

Adjustment of turntable height

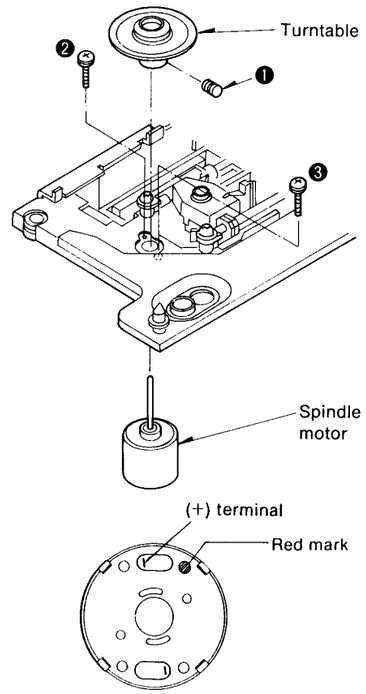
1. Insert a 0.9 mm feeler gauge (RZZ0297) between the turntable and the loading base as shown below.



2. Tighten the screw ❶ by using a 1.27 mm hexagonal wrench.

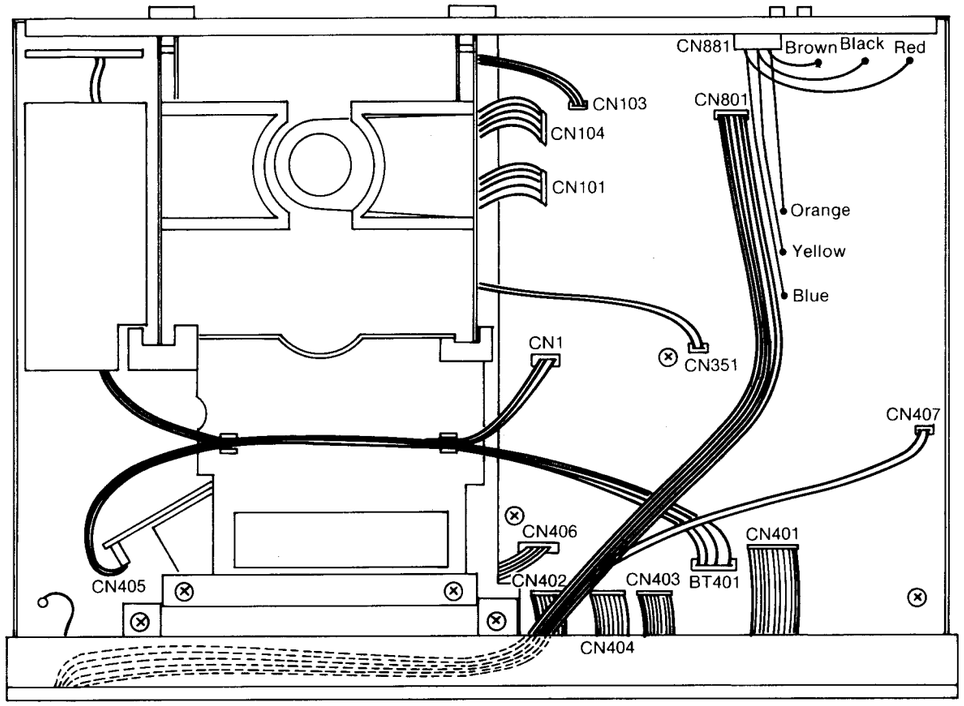
Cautions:

Refer to optical pickup adjustment (see page 34).

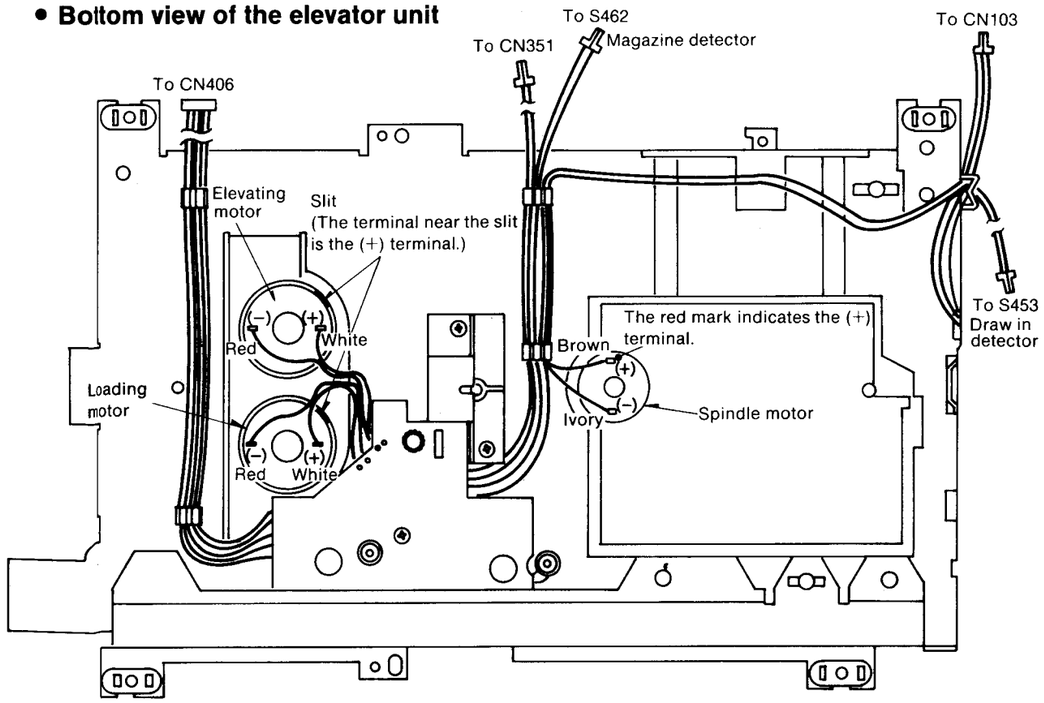


■ WIRING CONNECTION DIAGRAM

- **Upper view of the unit (with cabinet removed)**

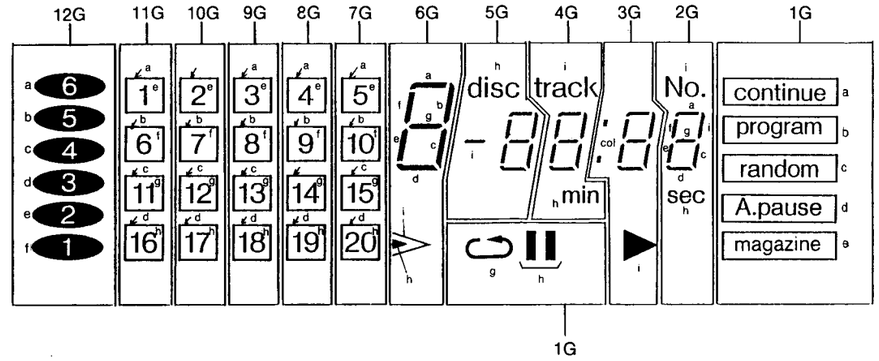


- **Bottom view of the elevator unit**



■ Internal connection of FL

- **Grid connection diagram**



Anode connection

ANODE CONNECTION

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	6	1	2	3	4	5	a	a	a	a	a	continue
b	5	6	7	8	9	10	b	b	b	b	b	program
c	4	11	12	13	14	15	c	c	c	c	c	random
d	3	16	17	18	19	20	d	d	d	d	d	A.pause
e	2	1	2	3	4	5	e	e	e	e	e	magazine
f	1	6	7	8	9	10	f	f	f	f	f	-
g	-	11	12	13	14	15	g	g	g	g	g	↺
h	-	16	17	18	19	20	▶	disc	min	col	sec	❚❚
i	-	-	-	-	-	-	>	—	track	▶	No.	-

■ RESISTORS AND CAPACITORS

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value

ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value 47x10¹ (ohm)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	330
Type	Voltage	Peculiarity	Value (33x10° microfarad)

Resistor Type	Wattage	Tolerance
ERD : Carbon ERG : Metal Oxide ERX : Metal Film ERQ : Fuse Type Metal ERD□ L : Carbon (chip) ERO□ K : Metal Film (chip) ERC : Solid	10 : 1/8W 12 : 1/2W 25 : 1/4W 1A : 1W 18 : 1/8W S2 : 1/4W S1 : 1/2W 2F : 1/4W 50 : 1/2W 2A : 2W	J : ±5% F : ±1% G : ±2% K : ±10%

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic ECCD : Ceramic ECKD : Ceramic ECQM : Polyester ECQP : Polypropylene ECG : Ceramic ECEA□□□N: Non Polar Electrolytic QCU□ : Ceramic (Chip Type) ECUX : Ceramic (Chip Type) ECF : Semiconductor EECW : Liquid electrolyte double layer capacitor	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1H : 50V 1V : 35V 50 : 50V 05 : 50V 2H : 500V 2A : 100V 1 : 100V KC: 400V AC KC: 125VAC (UL) 1J : 63V	C : ±0.25pF J : ±5% K : ±10% Z : +80% −20% P : +100% −0% M : ±20% D : ±0.5pF G : ±2%

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R12	ERDS2TJ222	2.2K 1/4
R13	ERDS2TJ472	4.7K 1/4
R14	ERDS2TJ392	3.9K 1/4
R15	ERDS2TJ331	330 1/4
R16	ERDS2TJ391	390 1/4
R17	ERDS2TJ331	330 1/4
R18	ERDS2TJ391	390 1/4
R19	ERDS2TJ221	220 1/4
R20	ERDS2TJ101	100 1/4
R21	ERDS2TG103	10K 1/4
R22	ERDS2TG332	3.3K 1/4
R23	ERDS2TJ153	15K 1/4
R24	ERDS2TG682	6.8K 1/4
R25	ERDS2TG682	6.8K 1/4
R101	ERDS2TJ154	150K 1/4
R102	ERDS2TJ472	4.7K 1/4
R103	ERDS2TJ472	4.7K 1/4
R104	ERDS2TJ223	22K 1/4
R105	ERDS2TJ334	330K 1/4
R107	ERDS2TJ683	68K 1/4
R108	ERDS2TJ332	3.3K 1/4
R109	ERDS2TJ822	8.2K 1/4
R110	ERDS2TJ682	6.8K 1/4
R111	ERDS2TJ682	6.8K 1/4
R112	ERDS2TJ822	8.2K 1/4
R113	ERDS2TJ152	1.5K 1/4
R114	ERDS2TJ152	1.5K 1/4
R115	ERDS2TJ102	1K 1/4
R116	ERDS2TJ182	1.8K 1/4
R117	ERDS2TJ182	1.8K 1/4
R118	ERDS2TJ102	1K 1/4
R119	ERDS2TJ471	470 1/4
R120	ERDS2TJ120	12 1/4
R122	ERDS2TJ471	470 1/4
R141	ERDS2TJ102	1K 1/4
R142	ERDS2TJ333	33K 1/4
R143	ERDS2TJ124	120K 1/4
R144	ERDS2TJ333	33K 1/4
R145	ERDS2TJ153	15K 1/4
R146	ERDS2TJ122	1.2K 1/4
R147	ERDS2TJ682	6.8K 1/4
R148	ERDS2TJ104	100K 1/4
R149	ERDS2TJ152	1.5K 1/4
R150	ERDS2TJ103	10K 1/4
R151	ERDS2TJ101	100 1/4
R152	ERDS2TJ153	15K 1/4
R153	ERDS2TJ270	27 1/4
R154	ERDS2TJ3R3	3.3 1/4
R161	ERDS2TJ333	33K 1/4
R162	ERDS2TJ222	2.2K 1/4
R163	ERDS2TJ333	33K 1/4
R164	ERDS2TJ153	15K 1/4
R165	ERDS2TJ122	1.2K 1/4
R166	ERDS2TJ102	1K 1/4
R167	ERDS2TJ681	680 1/4
R168	ERDS2TJ272	2.7K 1/4
R169	ERDS2TJ392	3.9K 1/4
R170	ERDS2TJ101	100 1/4
R171	ERDS2TJ270	27 1/4
R172	ERDS2TJ3R3	3.3 1/4
R180	ERDS2TJ474	470K 1/4
R181	ERDS2TJ471	470 1/4
R182	ERDS2TJ564	560K 1/4
R183	ERDS2TJ564	560K 1/4
R184	ERDS2TJ223	22K 1/4
R185	ERDS2CKF4702	47K 1/4
R186	ERDS2CKF4702	47K 1/4
R187	ERDS2CKF4702	47K 1/4
R188	ERDS2CKF4702	47K 1/4
R189	ERDS2TJ123	12K 1/4
R190	ERDS2TJ123	12K 1/4
R191	ERDS2TJ154	150K 1/4
R192	ERDS2TJ824	820K 1/4
R193	ERDS2TJ101	100 1/4
R194	ERDS2TJ683	68K 1/4
R195	ERDS2TJ103	10K 1/4
R196	ERDS2TJ103	10K 1/4
R197	ERDS2TJ473	47K 1/4
R198	ERDS2TJ473	47K 1/4
R199	ERDS2TJ471	470 1/4
R301	ERDS2TJ121	120 1/4
R302	ERDS2TJ472	4.7K 1/4
R305	ERDS2TJ102	1K 1/4
R306	ERDS2TJ472	4.7K 1/4
R352	ERDS2TJ334	330K 1/4
R355	ERDS2TJ333	33K 1/4
R356	ERDS2TJ333	33K 1/4
R358	ERDS2TJ103	10K 1/4
R359	ERDS2TJ274	270K 1/4
R360	ERDS2TJ123	12K 1/4
R361	ERDS2TJ101	100 1/4
R362	ERDS2TJ8R2	8.2 1/4
R401	ERDS2TJ472	4.7K 1/4
R407	ERDS2TJ103	10K 1/4
R408	ERDS2TJ103	10K 1/4
R409	ERDS2TJ103	10K 1/4
R410	ERDS2TJ103	10K 1/4
R411	ERDS2TJ472	4.7K 1/4
R412	ERDS2TJ472	4.7K 1/4
R413	ERDS2TJ472	4.7K 1/4
R419	ERDS2TJ472	4.7K 1/4
R420	ERDS2TJ472	4.7K 1/4
R421	ERDS2TJ472	4.7K 1/4
R422	ERDS2TJ472	4.7K 1/4
R423	ERDS2TJ472	4.7K 1/4
R424	ERDS2TJ473	47K 1/4
R425	ERDS2TJ222	2.2K 1/4
R426	ERDS2TJ222	2.2K 1/4
R427	ERDS2TJ222	2.2K 1/4
R428	ERDS2TJ222	2.2K 1/4
R430	ERDS2TJ103	10K 1/4
R431	ERDS2TJ103	10K 1/4
R432	ERDS2TJ103	10K 1/4
R433	ERDS2TJ103	10K 1/4
R434	ERDS2TJ103	10K 1/4
R435	ERDS2TJ103	10K 1/4
R436	ERDS2TJ103	10K 1/4
R437	ERDS2TJ103	10K 1/4
R438	ERDS2TJ103	10K 1/4
R439	ERDS2TJ103	10K 1/4
R440	ERDS2TJ152	1.5K 1/4
R441	ERDS2TJ394	390K 1/4
R444	ERDS2TJ103	10K 1/4
R445	ERDS2TJ103	10K 1/4
R446	ERDS2TJ103	10K 1/4
R447	ERDS2TJ103	10K 1/4
R448	ERDS2TJ103	10K 1/4

Ref. No.	Part No.	Value.
R449	ERDS2TJ103	10K 1/4
R450	ERDS2TJ103	10K 1/4
R451	ERDS2TJ103	10K 1/4
R452	ERDS2TJ103	10K 1/4
R453	ERDS2TJ103	10K 1/4
R457	ERDS2TJ102	1K 1/4
R458	ERX1ANJ2R7	2.7 1
R461	ERDS2TJ102	1K 1/4
R462	ERDS2TJ103	10K 1/4
R463	ERDS2TJ102	1K 1/4
R464	ERDS2TJ103	10K 1/4
R465	ERDS2TJ103	10K 1/4
R466	ERDS2TJ102	1K 1/4
R471	ERDS2TJ473	47K 1/4
R472	ERDS2TJ331	330 1/4
R473	ERDS2TJ103	10K 1/4
R474	ERDS2TJ103	10K 1/4
R481	ERDS2TJ102	1K 1/4
R482	ERDS2TJ102	1K 1/4
R483	ERDS2TJ102	1K 1/4
R489	ERDS2TJ103	10K 1/4
R501	ERDS2TJ224	220K 1/4
R502	ERDS2TJ562	5.6K 1/4
R503	ERDS2TJ224	220K 1/4
R504	ERDS2TJ101	100 1/4
R505	ERDS2TJ104	100K 1/4
R506	ERDS2TJ333	33K 1/4
R507	ERDS2TJ102	1K 1/4
R601	ERDS2TJ103	10K 1/4
R602	ERDS2TJ103	10K 1/4
R603	ERDS2TJ103	10K 1/4
R604	ERDS2TJ103	10K 1/4
R605	ERDS2TJ103	10K 1/4
R606	ERDS2TJ103	10K 1/4
R607	ERDS2TJ331	330 1/4
R608	ERDS2TJ331	330 1/4
R609	ERDS2TJ331	330 1/4
R610	ERDS2TJ331	330 1/4
R611	ERDS2TJ331	330 1/4
R612	ERDS2TJ331	330 1/4
R613	ERDS2TJ331	330 1/4
R614	ERDS2TJ331	330 1/4
R615	ERDS2TJ331	330 1/4
R616	ERDS2TJ331	330 1/4
R617	ERDS2TJ331	330 1/4
R618	ERDS2TJ331	330 1/4
R801	ERDS2TJ272	2.7K 1/4
R802	ERDS2TJ272	2.7K 1/4
R803	ERDS2TJ272	2.7K 1/4
R804	ERDS2TJ272	2.7K 1/4
R805	ERDS2TJ821	820 1/4
R806	ERDS2TJ821	820 1/4
R809	ERDS2TJ473	47K 1/4
R810	ERDS2TJ473	47K 1/4
R811	ERDS2TJ472	4.7K 1/4
R812	ERDS2TJ472	4.7K 1/4
R813	ERDS2TJ103	10K 1/4
R814	ERDS2TJ103	10K 1/4
R815	ERDS2TJ471	470 1/4
R816	ERDS2TJ471	470 1/4
R817	ERDS2TJ104	100K 1/4
R818	ERDS2TJ471	470 1/4
R819	ERDS2TJ561	560 1/4
R820	ERDS2TJ473	47K 1/4
R821	ERDS2TJ821	820 1/4
R822	ERDS2TJ104	100K 1/4
R823	ERDS2TJ104	100K 1/4
R824	ERDS2TJ221	220 1/4
R825	ERDS2TJ221	220 1/4
R826	ERDS2TJ821	820 1/4
R827	ERDS2TJ101	100 1/4
R828	ERDS2TJ101	100 1/4
R851	ERDS2TJ103	10K 1/4
R852	ERDS2TJ103	10K 1/4
R853	ERDS2TJ103	10K 1/4
R854	ERDS2TJ103	10K 1/4
R855	ERDS2TJ823	82K 1/4
R856	ERDS2TJ823	82K 1/4
R857	ERDS2TJ151	150 1/4
R858	ERDS2TJ151	150 1/4
R859	ERDS2TJ222	2.2K 1/4
R860	ERDS2TJ222	2.2K 1/4
R881	ERDS2TJ103	10K 1/4
R882	ERDS2TJ822	8.2K 1/4
R883	ERDS2TJ182	1.8K 1/4
R884	ERDS2TJ103	10K 1/4
R885	ERDS2TJ103	10K 1/4
R886	ERDS2TJ223	22K 1/4
R887	ERDS2TJ224	220K 1/4
R888	ERDS2TJ103	10K 1/4
R889	ERDS2TJ103	10K 1/4
R890	ERDS2TJ104	100K 1/4
R891	ERDS2TJ102	1K 1/4
R892	ERDS2TJ102	1K 1/4
R893	ERDS2TJ391	390 1/4
R894	ERDS2TJ391	390 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1 ⚠	ECKDKC103PF2	0.01
C11	ECKD1H223PF	0.022 50
C12	ECKD1H223PF	0.022 50
C13	ECKD1H223PF	0.022 50
C14	ECKD1H223PF	0.022 50
C15 ⚠	ECFD1H104ZF	0.1 50
C16	ECEA1HU470	47 50
C17	ECEA25V330V	330 25
C18	ECEA25V330V	330 25
C19	ECEA1EU221	220 25
C20	ECEA1EU221	220 25
C21	ECEA1CU101	100 16
C22	ECEA1CU101	100 16
C23	ECEA1CU222	2200 16
C24	ECEA1CU222	2200 16
C25	ECEA0JS331	330 6.3
C26	ECEA0JS331	330 6.3
C27	ECFD1H104ZF	0.1 50
C29	ECFD1H104ZF	0.1 50
C101	ECQV1H104JZ	0.1 50
C102	ECKD1H102KB	0.001 50
C103	ECKD1H102KB	0.001 50
C104	ECCD1H681K	680P 50
C105	ECCD1H471K	470P 50
C106	ECCD1H471K	470P 50
C107	ECCD1H220K	22P 50
C108	ECEA1HS0R1	0.1 50
C109	ECEA1HU010	1 50
C110	ECQV1H104JZ	0.1 50
C111	ECEA1HU100	10 50
C112	ECEA1HU100	10 50
C113	ECEA1HSR33	0.33 50
C114	ECKD1H182KB	0.0018 50
C115	ECQM1H682KF	0.0068 50
C116	ECQM1H333KF	0.033 50
C117	ECKD1H221KB	220P 50
C118	ECEA1HU010	1 50
C119	ECEA1AN220S	22 10
C120	ECKD1H681K	680P 50
C121	ECQM1H103KF	0.01 50
C122	ECKD1H101KB	100P 50
C123	ECKD1H101KB	100P 50
C124	ECKD1H222KB	0.0022 50
C125	ECEA0JU220	22 6.3
C126	ECEA0JU470	47 6.3
C127	ECKD1H102KB	0.001 50
C128	ECKD1H102KB	0.001 50
C129	ECKD1H681K	680P 50
C130	ECFD1H104ZF	0.1 50
C141	ECQM1H153KF	0.015 50
C142	ECQM1H122KF	0.0012 50
C143	ECQM1H473KF	0.047 50
C144	ECEA1HN2R2S	2.2 50
C145	ECEA1HNR22B	0.22 50
C161	ECQM1H153KF	0.015 50
C162	ECKD1H681K	680P 50
C163	ECQM1H103KF	0.01 50
C164	ECEA1EN3R3S	3.3 25
C165	ECEA1HSN0R1	0.1 50
C181	ECQM1H474JZ	0.47 50
C182	ECKD1H221KB	220P 50
C183	ECQM1H682KF	0.0068 50
C184	ECEA1HN010	1 50
C186	ECQM1H224JZ	0.22 50
C187	ECEA1HNR47	0.47 50
C188	ECKD1H103PF	0.01 50
C190	ECEA0JU101	100 6.3
C301	ECCD1H070CC	7P 50
C302	ECCD1H070CC	7P 50
C304	ECFD1H104ZF	0.1 50
C305	ECQM1H154JZ	0.15 50
C306	ECFD1H104ZF	0.1 50
C307	ECKD1H151KB	150P 50
C308	ECFD1H104ZF	0.1 50
C309	ECEA0JU220	22 6.3
C351	ECKD1H222KB	0.0022 50
C352	ECCD1H101K	100P 50
C353	ECCD1H101K	100P 50
C401	ECQM1H154JZ	0.15 50
C402	ECEA0JU470	47 6.3
C404	ECCD1H220K	22P 50
C405	ECKD1H103PF	0.01 50
C406	ECEA1HS0R1	0.1 50
C407	ECFD1H104ZF	0.1 50
C408	ECEA1CU100	10 16
C409	ECFD1H104ZF	0.1 50
C410	ECEA1HSR33	0.33 50
C411	ECEA1EU471	470 25
C412	ECFF1E683KR	0.068 25
C413	ECFF1E683KR	0.068 25
C414	ECQM1H223KF	0.022 50
C415	ECQM1H223KF	0.022 50
C501	ECQM1H104KF	0.1 50
C502	ECFD1H104ZF	0.1 50
C503	ECEA1CU100	10 16
C504	ECFD1H104ZF	0.1 50
C505	ECQM1H104KF	0.1 50
C506	ECCD1H150KC	15P 50
C507	ECKD1H102KB	0.001 50
C508	ECEA1CN100S	10 16
C509	ECCD1H100KC	10P 50
C510	ECQM1H104KF	0.1 50
C511	ECEA1HUR47	0.47 50
C512	ECKD1H681K	680P 50
C513	ECKD1H681K	680P 50
C514	ECQM1H474JZ	0.47 50
C515	ECQM1H153KF	0.015 50
C516	ECEA1VSN2R2	2.2 35
C517	ECKD1H471KB	470P 50
C518	ECQM1H472KF	0.0047 50
C601	RCBS1H101KBY	100P 50
C602	RCBS1H101KBY	100P 50
C603	RCBC1C103NYY	0.01 16
C801	ECKD1H271KB	270P 50
C802	ECKD1H271KB	270P 50
C803	ECEA1CN100S	10 16
C804	ECEA1CN100S	10 16
C805	ECKD1H102KB	0.001 50
C806	ECKD1H102KB	0.001 50
C807	ECEA1HN2R2S	2.2 50
C808	ECEA10V1000	1000 10
C809	ECEA1AU471	470 10
C810	ECEA1AU471	470 10
C812	ECEA1CN100S	10 16
C813	ECEA1CN100S	10 16
C814	ECEA1CU101	100 16
C815	ECEA1CU101	100 16
C817	ECFD1H104ZF	0.1 50
C818	ECFD1H104ZF	0.1 50
C851	ECKD1H223PF	0.022 50
C852	ECKD1H223PF	0.022 50
C853	ECEA1CN100S	10 16
C854	ECEA1CN100S	10 16
C855	ECKD1H103PF	0.01 50
C856	ECKD1H103PF	0.01 50
C857	ECFD1H104ZF	0.1 50
C881	ECEA1HU010	1 50

■ REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC11	M5236L	I.C., REGULATOR
IC12	SVIBA4558F	I.C., REGULATOR
IC101	AN8370S	I.C., OPTICAL SERVO
IC102	MN6636S	I.C., DEGLITCH
IC103	AN6554NS	I.C., OPERATION AMP.
IC104	AN6554NS	I.C., OPERATION AMP.
IC301	MN6617S	I.C., SIGNAL PROCESSING
IC302	SM5807ES	I.C., DIGITAL FILTER
IC303	SVICXK5816M	I.C., 16K RAM
IC401	MN15283PEC-1	I.C., SYSTEM CONTROL
IC403	SVIM51953BL	I.C., RESET
IC404	MN1550PEB	I.C., SIGNAL PROCESSING
IC405	BA6247	I.C., MOTOR DRIVE
IC501	AN8371S	I.C., DATA SLICE, PLL
IC601	HCMD12M	I.C., REMOTE SENSOR
IC602	MN74HC4304	I.C., L.E.D. DRIVE
IC603	MN74HC4304	I.C., L.E.D. DRIVE
IC801	PCM56HP	I.C., D/A CONVERTER
IC802	MN6636S	I.C., DEGLITCH
IC803	NJM5532M	I.C., OPERATION AMP.
IC804	SVIBA4560F	I.C., OPERATION AMP.
IC805	AFZ25F	I.C., L.P.F.
IC806	AFZ25F	I.C., L.P.F.
IC807	SVIBA4560F	I.C., HEADPHONES AMP.
IC808	SVIBA4560F	I.C., OPERATION AMP.
IC852	M5218L	I.C., HEADPHONES AMP.
IC881	SVIBA4558	I.C., MUTING DRIVE
TRANSISTORS		
Q11	2SD1227M	TRANSISTOR
Q12	2SB911M	TRANSISTOR
Q15	2SB1185DEF	TRANSISTOR
Q16	2SA885Q	TRANSISTOR
Q17	2SB1238QS	TRANSISTOR
Q101	2SC2021LNSF	TRANSISTOR
Q141	2SD1862-P	TRANSISTOR
Q142	2SB1240-P	TRANSISTOR
Q161	2SD1862-P	TRANSISTOR
Q162	2SB1240-P	TRANSISTOR
Q181	2SD1762DEF	TRANSISTOR
Q182	2SB1185DEF	TRANSISTOR
Q351	UN4112	TRANSISTOR
Q352	2SD1862-P	TRANSISTOR
Q353	2SB1240-P	TRANSISTOR
Q401	UN4212	TRANSISTOR
Q402	UN4212	TRANSISTOR
Q403	UN4212	TRANSISTOR
Q404	UN4212	TRANSISTOR
Q405	UN4212	TRANSISTOR
Q407	UN4212	TRANSISTOR
Q408	UN4212	TRANSISTOR
Q409	UN4212	TRANSISTOR
Q410	UN4212	TRANSISTOR
Q411	UN4212	TRANSISTOR
Q412	UN4212	TRANSISTOR
Q413	UN4212	TRANSISTOR
Q414	UN4112	TRANSISTOR
Q415	SVTDTC123EST	TRANSISTOR
Q416	UN4112	TRANSISTOR
Q417	SVTDTC123EST	TRANSISTOR
Q418	UN4112	TRANSISTOR
Q421	2SA1309QRS	TRANSISTOR
Q422	2SA1309QRS	TRANSISTOR
Q423	2SA1309QRS	TRANSISTOR
Q424	2SA1309QRS	TRANSISTOR
Q425	2SA1309QRS	TRANSISTOR
Q426	2SA1309QRS	TRANSISTOR
Q427	2SA1309QRS	TRANSISTOR
Q428	2SA1309QRS	TRANSISTOR
Q429	2SA1309QRS	TRANSISTOR
Q430	2SA1309QRS	TRANSISTOR
Q432	2SA1309QRS	TRANSISTOR
Q451	2SD636	TRANSISTOR
Q501	UN4112	TRANSISTOR
Q601	UN4212	TRANSISTOR
Q602	UN4212	TRANSISTOR
Q603	UN4212	TRANSISTOR
Q604	UN4212	TRANSISTOR
Q605	UN4212	TRANSISTOR
Q606	UN4212	TRANSISTOR
Q607	UN4212	TRANSISTOR
Q608	UN4212	TRANSISTOR
Q609	UN4212	TRANSISTOR
Q610	UN4212	TRANSISTOR
Q801	2SC3311A-Q	TRANSISTOR
Q802	2SC3311A-Q	TRANSISTOR
Q803	2SD1330R	TRANSISTOR
Q804	2SD1330R	TRANSISTOR
Q805	UN4112	TRANSISTOR
Q806	UN4212	TRANSISTOR
Q807	UN4112	TRANSISTOR
Q808	UN4212	TRANSISTOR
Q809	UN4112	TRANSISTOR
Q810	2SC3311A-Q	TRANSISTOR
Q811	2SA1309QRS	TRANSISTOR
Q812	2SC3311A-Q	TRANSISTOR
Q813	2SA1309QRS	TRANSISTOR
Q851	2SD1330R	TRANSISTOR
Q852	2SD1330R	TRANSISTOR
Q881	UN4112	TRANSISTOR
Q882	2SD1330R	TRANSISTOR
Q883	2SD1330R	TRANSISTOR
DIODES		
D11 ⚠	SVD1SR35200A	RECTIFIER
D12 ⚠	SVD1SR35200A	RECTIFIER
D13 ⚠	SVD1SR35200A	RECTIFIER
D14 ⚠	SVD1SR35200A	RECTIFIER
D15 ⚠	SVD1SR35200A	RECTIFIER
D16 ⚠	SVD1SR35200A	RECTIFIER
D17 ⚠	SVD1SR35200A	RECTIFIER
D18 ⚠	SVD1SR35200A	RECTIFIER
D19 ⚠	SVD1SR35200A	RECTIFIER
D20	MA723	DIODE
D23	MA4330M	DIODE
D24	MA4082M	DIODE
D25	MA4110M	DIODE
D26	MA4110M	DIODE
D181	MA165	DIODE
D182	MA165	DIODE
D401	MA165	DIODE
D402	MA165	DIODE
D404	MA165	DIODE
D405	MA165	DIODE
D406	MA165	DIODE
D407	MA165	DIODE
D408	MA165	DIODE
D409	MA165	DIODE
D410	MA165	DIODE
D411	MA165	DIODE
D412	MA165	DIODE
D413	MA165	DIODE
D415	MA165	DIODE
D416	MA165	DIODE
D417	MA165	DIODE
D418	MA165	DIODE
D419	MA165	DIODE
D420	MA165	DIODE
D421	MA165	DIODE
D422	MA165	DIODE
D423	MA165	DIODE
D424	MA165	DIODE
D425	MA165	DIODE
D426	MA165	DIODE
D433	MA165	DIODE
D434	MA165	DIODE
D435	MA165	DIODE
D437	MA4056-M	DIODE
D438	MA4030M	DIODE
D451	SVDGP1S53	L.E.D
D601-D606	SVGD5305S	L.E.D
D607	MA165	DIODE
D608	MA165	DIODE
D609	MA165	DIODE
D610	MA165	DIODE
D611	MA165	DIODE
D612	MA165	DIODE
D613	MA165	DIODE
D801	MA723	DIODE
D802	MA723	DIODE
D803	MA165	DIODE
D804	MA165	DIODE
D805	MA165	DIODE
D806	MA165	DIODE
D807	MA165	DIODE
D808	MA4062-M	DIODE
D809	MA4062-M	DIODE
D881	MA165	DIODE
D883	MA165	DIODE
D884	MA165	DIODE
I.C.PROTECTORS		
ICP11 (MC)	SRUF15	I.C.PROTECTOR
ICP12 (MC)	SRUF15	I.C.PROTECTOR
ICP13 (MC)	SRUF15	I.C.PROTECTOR
ICP14 (MC)	SRUF15	I.C.PROTECTOR
ICP15 (MC)	SRUF15	I.C.PROTECTOR
VARIABLE RESISTORS		
VR101	EVND3AA00B53	V.R., BEST EYE ADJ.
VR102	EVND3AA00B14	V.R., TACKING GAIN ADJ.
VR103	EVND3AA00B14	V.R., TRACKING OFFSET ADJ.
VR104	EVND3AA00B14	V.R., FOCUS GAIN ADJ.
VR105	EVND3AA00B14	V.R., FOCUS OFFSET ADJ.
VR106	EVND3AA00B53	V.R., TRACKING BALANCE ADJ.
VR501	EVN38CA00B13	V.R., PLL ADJ.
VR851	EVJWEA020A15	V.R., HEADPHONES LEVEL
COILS AND TRANSFORMERS		
L301	ELEPK4R7KA	COIL
L401	ELEPK3R3KA	COIL
L801	ELEPK3R3KA	COIL
L802	ELEPK3R3KA	COIL
L851	ELEPK3R3KA	COIL
L852	ELEPK3R3KA	COIL
L853	ELEPK3R3KA	COIL
T1 (M) ⚠	SLTD5V047M	TRANSFORMER
T1 (MC) ⚠	SLTD5V052C	TRANSFORMER
OSCILLATORS		
X301	SVQ16CKSS	16.9344MHZ
DISPLAYS		
FL601	SAD12MT24G	DISPLAY
SWITCHES		
S1 ⚠	ESB8249V	POWER SWITCH
S451	SSPD12	SW, EJECT DET.
S452	SSPD12	SW, LOADING DET.
S453	SSPD12	SW, DRAW-IN DET.
S454	SSPD13	SW, RESET
S455-S460	SSPD11	SW, DISC DETECTION
S462	SSPD12	SW, MAGAZINE DET.
S601	EVQQS405K	SW, DISC(NO.4)
S602	EVQQS405K	SW, DISC(NO.1)
S603	EVQQS405K	SW, NUMERIC(8)
S604	EVQQS405K	SW, NUMERIC(5)
S605	EVQQS405K	SW, NUMERIC(2)
S606	EVQQS405K	SW, NUMERIC(1)
S607	EVQQS405K	SW, PROG/CONT
S608	EVQQS405K	SW, STOP
S609	EVQQS405K	SW, DISC(NO.5)
S610	EVQQS405K	SW, DISC(NO.2)
S611	EVQQS405K	SW, NUMERIC(9)
S612	EVQQS405K	SW, NUMERIC(6)
S613	EVQQS405K	SW, NUMERIC(3)
S614	EVQQS405K	SW, (+10)
S615	EVQQS405K	SW, CLEAR
S616	EVQQS405K	SW, RECALL
S617	EVQQS405K	SW, DISC(NO.6)
S618	EVQQS405K	SW, DISC(NO.3)
S619	EVQQS405K	SW, NUMERIC(0)
S620	EVQQS405K	SW, NUMERIC(7)
S621	EVQQS405K	SW, NUMERIC(4)
S622	EVQQS405K	SW, PLAY/PAUSE
S623	EVQQS405K	SW, RND
S624	EVQQS405K	SW, EJECT
S625	EVQQS405K	SW, REPEAT
S626	EVQQS405K	SW, B.SKIP
S627	EVQQS405K	SW, F.SKIP
S628	EVQQS405K	SW, DISPLAY

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	SGPD681ZF	CHASSIS
2	SGPD700KY0B	REAR PANEL
3	SKUD20	COVER
4	SKLD8-E	FOOT
5	SJS9234A	AC INLET COVER
6	SHWD32	WASHER
7	SGYLP600C-KM	FRONT PANEL
8	SUBD11	POWER BUTTON ROD
9	SBC666-5	BUTTON, POWER
10	SKCD590KE	CABINET
11	XTBS3+8JFZ1	SCREW
12	XTB3+8FFZ	SCREW
13	XTBS3+8JFR1	SCREW
14	XTB3+8G	SCREW
16	SNE2129-1	SCREW
17	SHDD7	SCREW
18	SGXD3120KE0B	ORNAMENT (A)
19	SGXLP600C-KM	ORNAMENT (B)
20	SGXD3140ZK0B	BUTTON ORNAMENT
21	SBCD4670ZT0A	DISC SELECT BUTTON
22	SGDD510ZK0A	COMPARTMENT COVER
23	SUSD99	SPRING
24	SUWD84	BRACKET
25	SHRD148	SPACER
26	SBN1161-2	KNOB, HEADPHONES LEVEL
27	XTB3+8G	SCREW
28	SUWD77	BRACKET
29	SBCD4590ZK0D	EJECT BUTTON
30	SBCD4740ZK0B	SEARCH BUTTON
31	SBCLP600C-KM	BUTTON, PLAY
32	SBCD4611ZK0C	BUTTON, NUMERIC (UPPER)
33	SBCD4611ZK0D	BUTTON, NUMERIC (LOWER)
34	SBCD4611ZK0F	BUTTON, PROGRAM
35 ⚠	SJS9234B	AC INLET
36	EMCS0350Z	CONNECTOR(CN103)
37	EMCS0552M	CONNECTOR(CN102)
38	SJSD0605	CONNECTOR(CN801)
39	SJTD1013-W	CONNECTOR(CN406)
40	SJTD813-W	CONNECTOR(CN1)
41	SJSD0305	CONNECTOR(CN407)
42	SJSD0705	CONNECTOR(CN402)
43	SJSD0805	CONNECTOR(CN101)
44	SJSD0905	CONNECTOR(CN104)
45	SJSD1005	CONNECTOR(CN404)
46	SJSD1105	CONNECTOR(CN403)
47	SJSD1205	CONNECTOR(CN401)
48	SRDJ001N14E	SHORTING CONNECTOR(CN102)
49	SJFD4	OUTPUT TERMINAL
50	EMCS0250Z	CONNECTOR(CN351)
51	QJA0455ZC	JACK, HEADPHONES
52	SHRD160	SHIELD PLATE
53	SFUZD33-01E	LATCH
54	SHRD125	SPACER
55	SHRD51	STOPPER
56	SHRD170	REMOTE SENSOR COVER

Ref. No.	Part No.	Description
LOADING MECHANICAL		
60	SMBD6	DRIVE BELT
61	SDGD42	GEAR (A)
62	SDGD45	GEAR (B)
63	SDGD41	DRIVE GEAR
64	SDGLP600C-KM	ELEVATING CAM
65	SNND1	NUT
66	SNBD2	SPACER, TRAVERSE UNIT
67	SJSD1709	CONNECTOR(CN451)
68	SIRD65	ELEVATOR RACK GUIDE
69	SIRD58	DRIVE RACK GEAR
70	SIRD59	RACK GEAR
71	SUSD95	SPRING
72	SIRD60	GEAR SETTING LEVER
73	SUSD96	SPRING
74	SIRD68	SWITCH LEVER (A)
75	SIRD69	SWITCH LEVER (B)
76	SHGD132	CUSHION RUBBBER
77	SMND16	SPACER
78	SMND17	SPACER
79	XYE3+EJ10	SCREW
80	SDGD43-1	PULLEY GEAR
81	SMNLP600C-KM	MOTOR(ELEVATING)
82	XTV3+8J	SCREW
83	XTN26+T4	SCREW
84	SHWD27	WASHER
85	SHWD28	WASHER
86	XTV3+6BFN	SCREW
87	SIWD82-E	TRAY GUIDE PLATE (A)
88	SIWD94-1	TRAY GUIDE PLATE (B)
89	SHGD110	CUSHION RUBBER
90	SIWD73	MAGAZINE BASE COVER
91	SIWD86-1	BRACKET
92	SIRD62-1	MAGAZINE LOCK LEVER
93	SIRD63-1	RELEASE LEVER
94	SIRD66	DISC SWITCH LEVER (A)
95	SHRD163	LEAD WIRE HOLDER
96	SIRLP600C-KM	DISC SWITCH LEVER (B)
97	SHRD139	ROLLER HOLDER
98	SIRD64	MAGAZINE BASE
99	SUSD98	SPRING
100	SUSD111	SPRING
101	SUSD101	SPRING
102	SUSD124	SPRING
103	SUSD110	SPRING
104	SUSD121	SPRING
105	SHWD27	WASHER
106	SDRD11	ROLLER
107	SHRD162	LEAD WIRE HOLDER
109	XUC4FY	E-RING
110	XTB3+10JFZ	SCREW
111	SNSD10	SCREW
112	XTV3+10G	SCREW
113	SIRD70	ELEVATOR RACK
114	SIRD71	TRAY SWITCH LEVER (C)
115	SIRD86	TRAY SWITCH LEVER(B)
116	SUSD122	SPRING
117	SUSD105	SPRING
118	SIRD88	TRAY SWITCH LEVER(A)
119	SIRD76	TRAY STOPPER
120	SUSD104-1	SPRING
121	SDGD46	TIMING GEAR
122	SUXD95	TIMING GEAR SHAFT
123	SDRD3	ROLLER
124	SUXD116	GUIDE SHAFT
125	SUSD102-1	SPRING
126	SIRD78	TRAY HOLDER(A)
127	SIRD87	TRAY HOLDER(B)
128	SIWD68-1E	ELEVATING LEVER (A)
129	SIWD69-1E	ELEVATING LEVER (B)
130	XTV3+8G	SCREW
131	XTV3+5J	SCREW
132	XTV3+10G	SCREW
133	SHWD27	WASHER
134	SIWD66-1E	LOADING BASE
135	XUC2FT	E-RING
136	XTS3+8G	SCREW
137	SUSD84-1	SPRING (GOLD)
138	SUSD85	SPRING (SILVER)
139	SUSD90-1	SPRING (BLACK)
140	XUC3FY	E-RING
141	XYN26+F6	SCREW
142	XTV3+30JFZ	SCREW
143	XTN17+CJ8	SCREW
144	SIWLP600CKM1	MECHANISM BASE
145	SMNLP600C-KM	MOTOR(LOADING)
146	SIWD87-E	MECHANISM BASE
147	SIWD88-E	EJECT LEVER
148	SIWLP600CKM2	CLAMPER
149	SFXGQ06N01	SCREW
150	SUXD99	CLAMPER SHAFT
151	SIWD67-1	CLAMPER BASE
152	SUSD106	SPRING
153	SIRD51-1	HOLDER
154	S0MD8	DISC MAGNET
155	S0YD2	YOKE
156	XUC25FY	E-RING
157	SIRD73	TRAY HOOK BASE
158	SIRD74	SLIDER
159	SUSD103	SPRING
160	SIRD75	TRAY HOOK
162	SUSD108	SPRING
TRAVERSE DECK		
200	SISD13-3	TRAVERSE BASE
201	SRQA010N04	SPRING
202	SD0D28-1E	TURNTABLE
203	SD0D29-2	RING
204	SJGDRF310T	SPINDLE MOTOR
205	S0RD21E-1	TRAVERSE COIL
206	SUXD78-1	GUIDE SHAFT
207 ⚠	S0AD32A-2	OPTICAL PICKUP
208	EWSL11A00000	COIL HOLDER
209	EWS7G0A00Q53	RESISTANCE UNIT
210	SHGD131	STOPPER
211	S0YD8E-1	YOKE (A)
212	S0YD9	YOKE (B)
213	SHRD136	GUIDE SHAFT HOLDER(A)
214	XTV3+12GFZ	SCREW
215	SHRD23-2	LOCK SHAFT
216	XTV3+8G	SCREW
217	XTV2+4G	SCREW
218	XQN17+C6	SCREW
219	XYM2+C12	SCREW
220	XXE26D5	SCREW
221	SNSD27	SCREW
222	SHRD137	GUIDE SHAFT HOLDER(B)

Ref. No.	Part No.	Description
PACKINGS		
P1 (M)	SPND238	CARTON BOX
P1 (MC)	SPND239	CARTON BOX
P2	SPSD131	PAD(FRONT)
P3	SPSD132	PAD(REAR)
P4	SPPD13	PROTECTION BAG(UNIT)
P5	XZB60X50A01	PROTECTION COVER(UNIT)
P6	SFUMF01N16	CLAMPER
P7	XTV4+16JFYB	SCREW(CLAMPER)
P8	XSB4+55FYB	SCREW(RACK)
P9	XZB23X35C03	POLYETHYLENE BAG(INST. BOOK)
P10	SMND17	SPACER
P11	SRHZJ02N01	POLYETHYLENE BAG(REMOTE CONTROL)
P12	SHDD9	SCREW

Ref. No.	Part No.	Description
ACCESSORIES		
A1 (MC)	SQXLP600CKMC	INSTRUCTION MANUAL
A1 (M)	SQX54479	INSTRUCTION MANUAL
A2 ⚠ (MC)	SJA172	POWER CORD
A2 ⚠ (M)	SJA172-1	POWER CORD
A3	SJP2249-1	OUTPUT CORD
A5	UM-3NEP	BATTERY
A6	SHRD107-Z	DISC MAGAZINE
A6-1	SHRD109	DISC TRAY
A6-2	SHRD119	CARTON BOX(DISC MAGAZINE)
A6-3	SQZD27	INDEX LABEL
A6-4	XZB17X25C03	PROTECTION COVER(DISC MAGAZINE)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1001	MN6030CA	I.C., TRANSMITTER
TRANSISTORS		
Q1001	UN1231	TRANSISTOR
DIODES		
D1001	LN66	L.E.D
D1002	MA154WK	DIODE
D1003	MA154WK	DIODE
D1004	MA154WK	DIODE
D1006	MA154WA	DIODE
D1007	MA154WA	DIODE
OSCILLATOR		
X1001	CSB455EB1	OSC. 455KHZ
RESISTORS		
R1001	ERDS2TJ1R0	CARBON, 1Ω, 1/4W

Ref. No.	Part No.	Description
CAPACITORS		
C1001	ECKD1H101KB	CERAMIC, 100PF, 50V
C1002	ECKD1H101KB	CERAMIC, 100PF, 50V
C1003	ECEA0JK101	ELECTROLYTIC, 100μF, 6.3V
REMOTE CONTROL UNIT		
1	UR64VCS365	UPPER CABINET
2	UR64VCS367	LOWER CABINET
3	UR64EC121	COVER, BATTERY
4	UR64CT122	RUBBER, SWITCH
5	UR64BT123AA	BUTTON
6	UR64SB125	PLATE
7	UR52TD101	TERMINAL (COMMON)
8	UR64TD127	TERMINAL (+)
9	UR64TD128	TERMINAL (-)
10	XTS26+12GFZ	SCREW
REMOTE CONTROL ASS'Y		
RC1	EUR64559	REMOTE CONT.(REF TO NOTE)

■ ABOUT THE OPTIONAL SIX COMPACT DISC MAGAZINE (SH-CDS6)

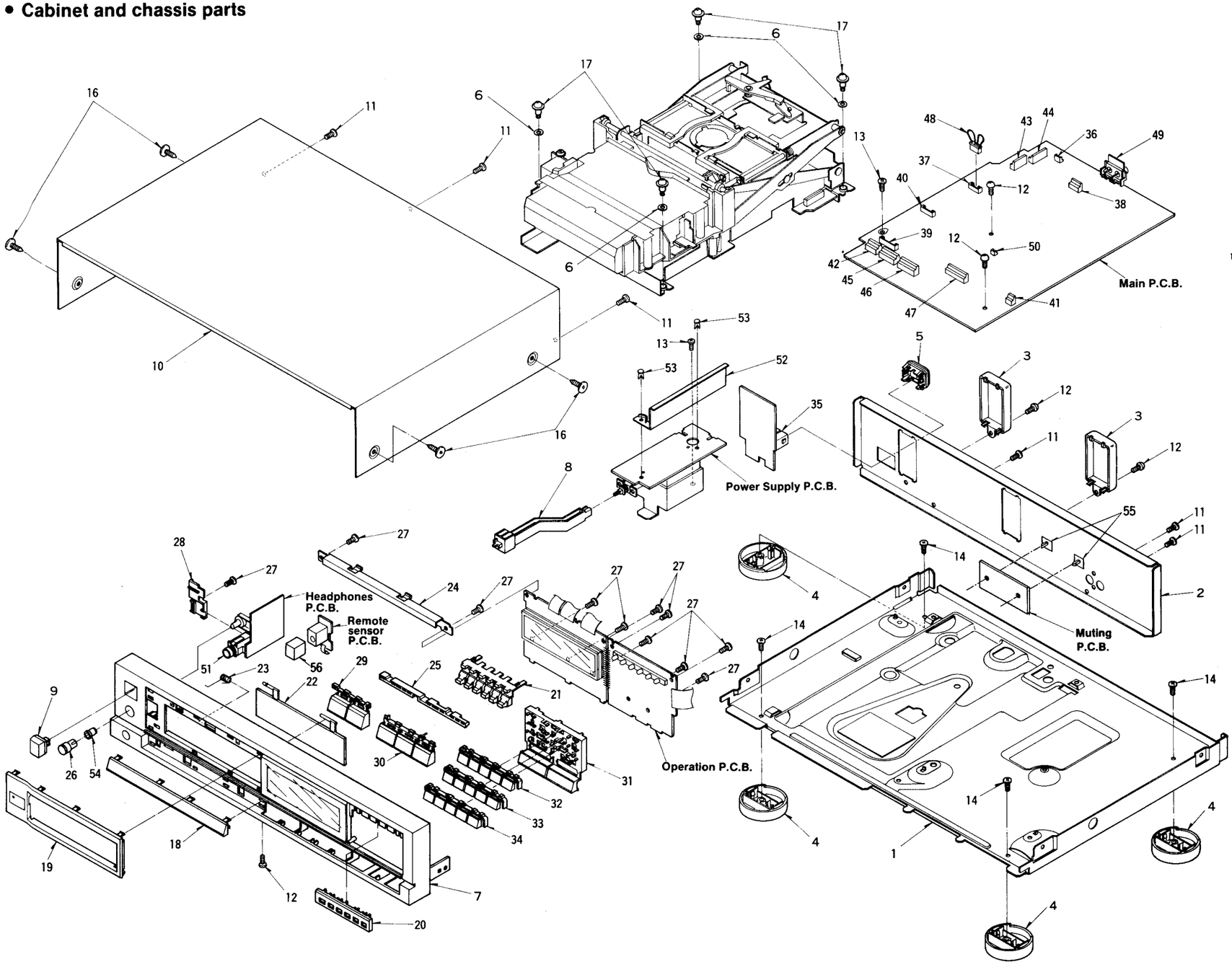
The SL-P600C accessory six compact disc magazine is sold as an option.
The replacement parts list for the optional six compact disc magazine (SH-CDS6) is shown below.

• SH-CDS6 Replacement Parts List

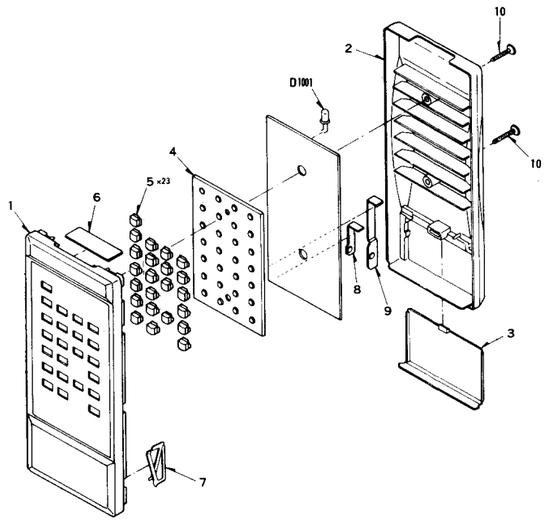
Ref. No.	Part No.	Description
CABINET PARTS		
A6	SHRD107-Z	DISC MAGAZINE ASS'Y
A6-1	SHRD109	DISC TRAY
A6-2	SHRD119	INNER CARTON BOX
A6-3	SQZD27	INDEX LABEL
A6-4	XZB17X25C03	PROTECTION COVER
PACKING PARTS		
P1	SPND253	CARTON BOX
P2	SPSD140	PAD

■ EXPLODED VIEWS

• Cabinet and chassis parts



• Remote control unit parts



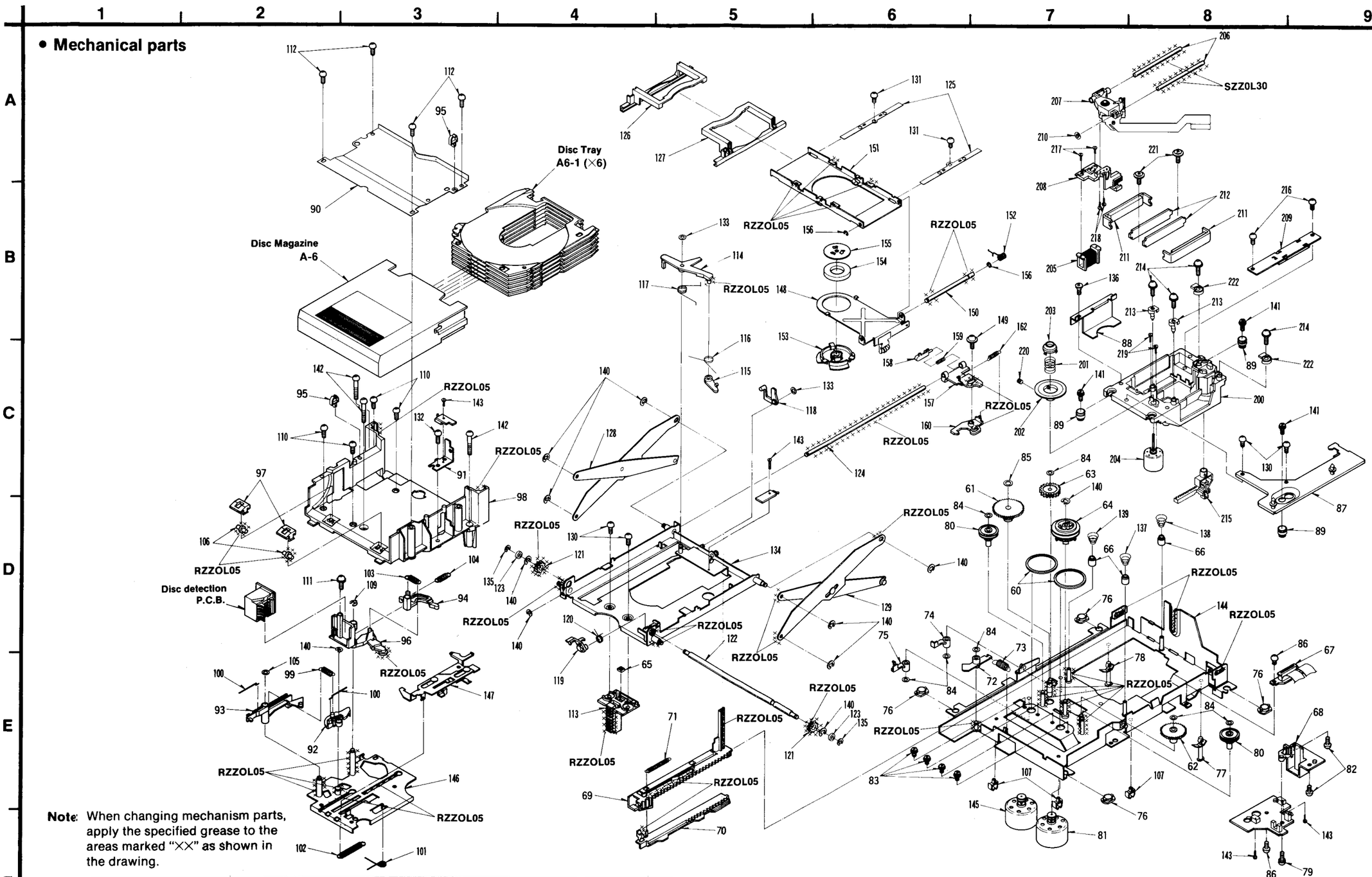
Note concerning the change in microcomputer (IC401)
The system control microcomputer was changed in mid-production. A new microcomputer is supplied.

	Old part	New part
Part No.	MN15283PEC	MN15283PEC-1

Notes:
- The new microcomputer can be used in both new and old units.
- In units with the new microcomputer, one circuit has been discontinued (Muting P.C.B.).
- When changing to the new microcomputer in a unit with the old microcomputer, remove the above-mentioned Muting P.C.B.

1~25	9 19 16 10 18 23 12 22 11 20 25 24 6 7 11 16 21 8 17 6 11 13 6 14 4 17 13 1 5 12 14 14 12 3 4 12 11 3 12 2 4 11 14
26~54	26 54 28 51 27 56 29 30 27 27 34 33 32 27 31 53 27 27 27 53 52 35 42 45 46 40 37 47 39 48 43 44 50 41 36 38 55 49

• Mechanical parts



Note: When changing mechanism parts, apply the specified grease to the areas marked "××" as shown in the drawing.

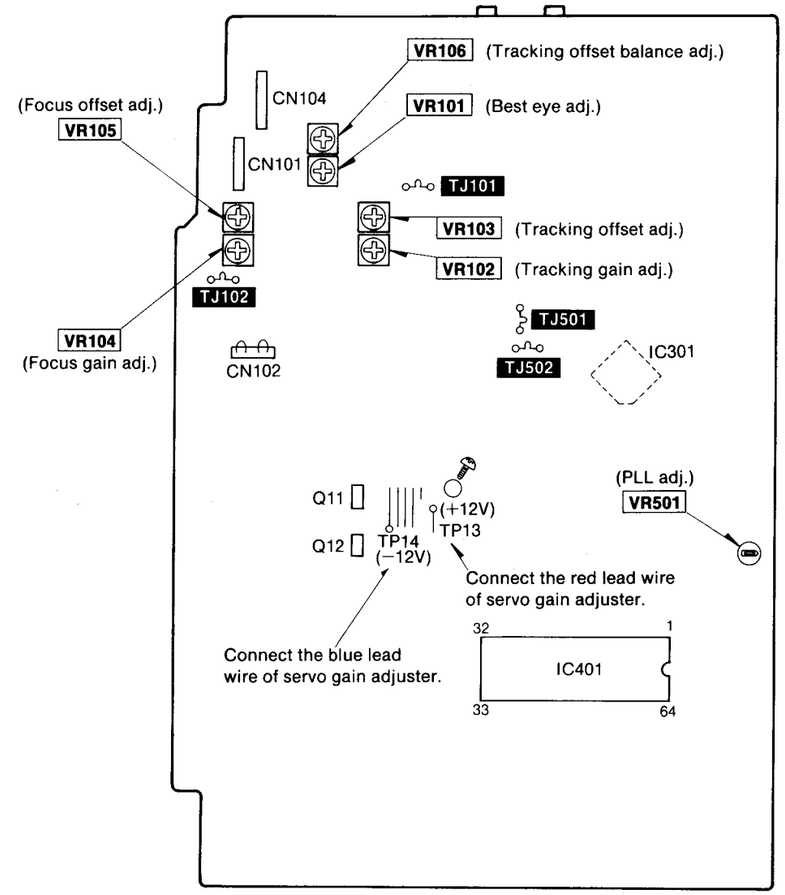
60~100	100 93 97 95 99 90 92 100 96 95 91 94 98 69 65 71 70 83 76 75 80 74 84 61 84 72 73 60 85 89 84 81 64 66 63 88 76 62 84 66 77 89 80 76 86 79 89 87 67 82 68
101~140	106 112 110 105 111 102 103 109 110 132 101 104 112 135 140 123 140 119 130 113 120 121 140 128 126 127 116 122 138 114 115 134 121 140 133 123 118 124 135 129 131 140 131 125 140 107 140 136 139 137 107 138 130
141~162 200~222	140 142 143 146 142 147 148 153 143 156 151 155 154 158 157 160 150 159 145 152 156 210 208 207 217 149 162 202 220 205 203 201 218 141 211 213 219 204 221 214 206 222 212 211 213 215 144 143 200 141 216 214 209 222 143

■ MEASUREMENTS AND ADJUSTMENT

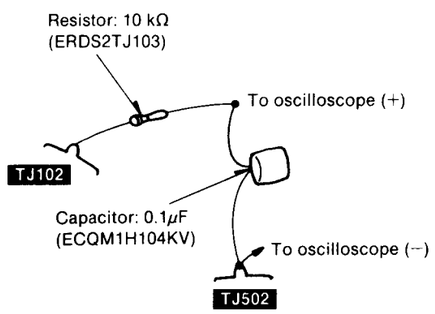
Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
  With the unit turned "on", laser radiation is emitted from the pickup lens.
  Avoid exposure to the laser beam , especially when performing adjustments.

ADJUSTMENT POINTS

- **Main P.C.B.**



- **Filter for turntable height adjustment**



ELECTRICAL ADJUSTMENT

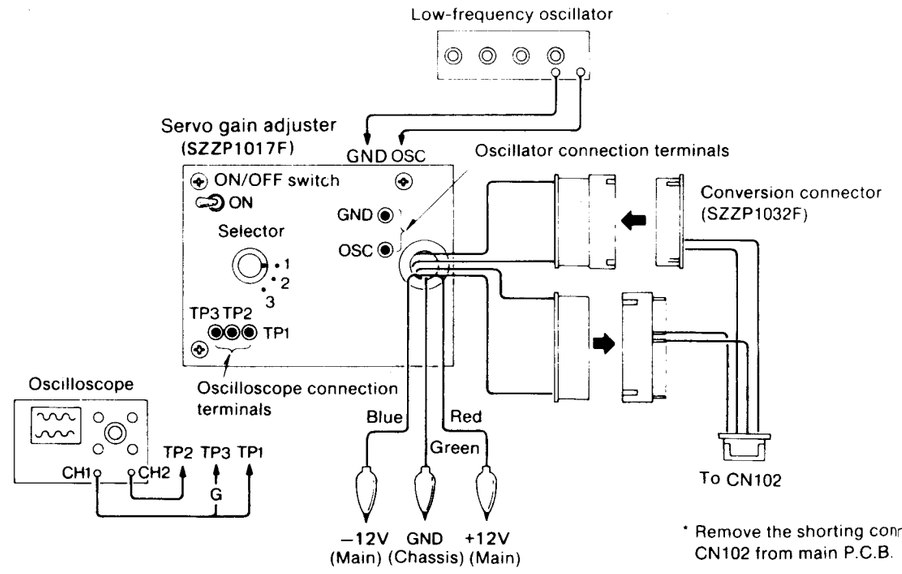
Measuring Instruments and Special Tools

- Servo gain adjuster (SZZP1017F)
- Test discs
  Test disc(SZZP1014F) old or new type
  Inspection test disc (SZZP1054C)
  Uneven disc (SZZP1056C)
  Black band disc (SZZP1057C)
- Ordinary disc
- Two-channel oscilloscope (with trigger) of 30MHz or over
- Low frequency oscillator
- Conversion connector(SZZP1032F)

Adjustment Procedure

Step 1: Remove the cabinet. (Refer to page 12.)
↓
Step 2: Make the temporary setting of each VR. (Refer to page 31.)
↓
Step 3: Best eye (PD balance) adjustment. (Refer to page 31.)
↓
Step 4: Connect the servo gain adjuster. (Refer to page 30.)
↓
Step 5: Focus gain adjustment. (Refer to page 31.)
↓
Step 6: Tracking gain adjustment. (Refer to page 32.)
↓
Step 7: Focus offset adjustment. (Refer to page 32.)
↓
Step 8: Tracking offset adjustment. (Refer to page 32.)
↓
Step 9: Tracking offset balance adjustment. (Refer to page 33.)
↓
Step 10: Disconnect the servo gain adjuster.
↓
Step 11: PLL adjustment. (Refer to page 33.)
↓
Step 12: Check of operation after adjustment. (Refer to page 33.)

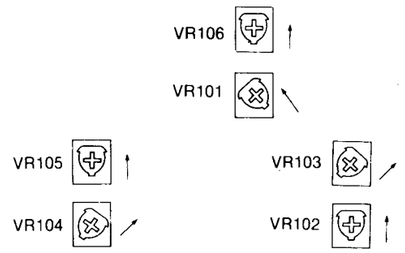
Connection of Servo Gain Adjuster



* Remove the shorting connector CN102 from main P.C.B.

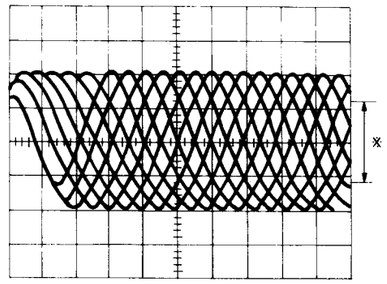
TEMPORARY SETTING OF EACH VR

Note:
If a disc skips or cannot be played back, adjust each VR temporarily, as shown.



BEST EYE(PD BALANCE) ADJUSTMENT

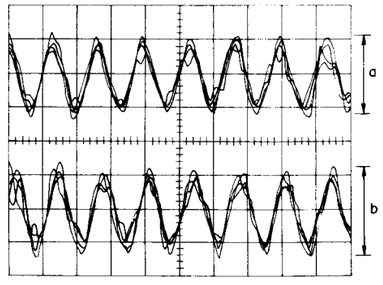
1.Connect CH1 of the oscilloscope to **TJ501** (+) and **TJ502** (-) of the main P.C.B.
Oscilloscope setting:VOLT.....200mV
SWEEP.....0.5µsec.
INPUT.....AC
2.Turn **ON** the power switch of the player and insert the magazine with a test disc (SZZP1014F or SZZP1054C).
3.Set the player to the play mode.
4.Adjust **VR101** so that the eye pattern of RF signal is stretched to maximum.
5.Turn **OFF** the power switch of the player.



*Most stretched eye pattern

FOCUS GAIN ADJUSTMENT

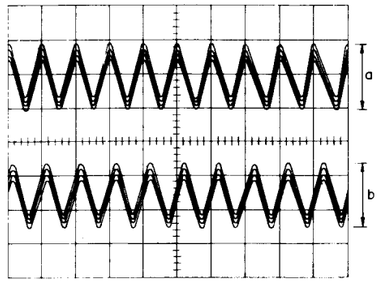
1.Connect the servo gain adjuster. (Refer to page 30.)
2.Set the selector switch of the servo gain adjuster to **2** and ON-OFF switch to **ON.**
3.Set the low frequency oscillator to a frequency of **750Hz** and an output voltage of **100mVp-p.** Then connect the oscillator to **OSC** (+) and **GND** (-) terminals of the servo gain adjuster.
4.Connect CH1 and CH2 of the oscilloscope to **TP1** and **TP2** of the servo gain adjuster.(TP3 is the ground terminal.)
Oscilloscope setting:VOLT.....200mV(both channels)
SWEEP.....1msec.
INPUT.....DC
5.Turn **ON** the power switch of the player and insert the magazine with a test disc (SZZP1014F or SZZP1054C).
6.Set the player to the play mode.
7.Set the selector switch of the servo gain adjuster from **"2"** to **"3"**.
8.**750Hz** signals will be displayed on the oscilloscope. Adjust **VR104** until the waveform amplitudes of both channels are equal.
9.Shift the selector switch of the servo gain adjuster from **"3"** to **"2"**.



* Make a=b

TRACKING GAIN ADJUSTMENT

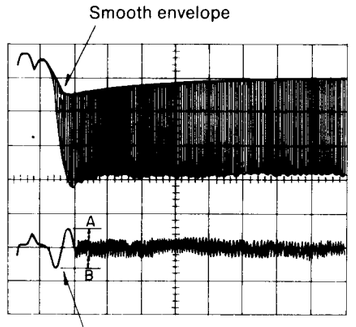
1.Set the low frequency oscillator to a frequency of **1.0kHz** and an output voltage of **100mVp-p.** Then connect the oscillator to **OSC** (+) and **GND** (-) terminals of the servo gain adjuster.
2.Connect CH1 and CH2 of the oscilloscope to **TP1** and **TP2** of the servo gain adjuster.(TP3 is the ground terminal.)
Oscilloscope setting:VOLT.....200mV(both channels)
SWEEP.....1msec.
INPUT.....DC
3.Turn **ON** the power switch of the player and insert the magazine with a test disc (SZZP1014F or SZZP1054C).
4.Set the player to the play mode.
5.Set the selector switch of the servo gain adjuster from **"2"** to **"1"**.
6.**1.0kHz** signals will be displayed on the oscilloscope. Adjust **VR102** until the waveform amplitudes of both channels are equal.
7.Shift the selector switch of the servo gain adjuster from **"1"** to **"2"**.



*Make a=b

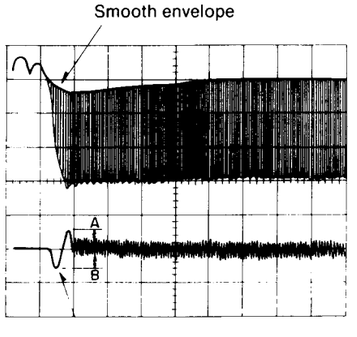
FOCUS OFFSET ADJUSTMENT

1.Connect CH1 of the oscilloscope to **TJ501** (+) and **TJ502** (-) of the main P.C.B. Connect CH2 of the oscilloscope to **TJ102** (+) and **TJ502** (-)of the main P.C.B.
Oscilloscope setting:VOLT.....200mV(both channels)
SWEEP.....0.5msec.
INPUT.....AC(CH1), DC(CH2)
MODE.....NORM
(Triggering via CH1)
2.Turn **ON** the power switch of the player and insert the magazine with the test disc (SZZP1057C).
3.Set the player to the play mode.
4.Check the waveform of CH1 and CH2 on the oscilloscope and adjust **VR105**, so that the waveform around the triggering point becomes as shown in the illustration.



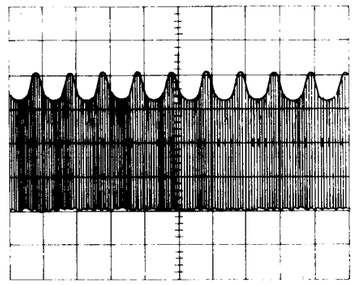
TRACKING OFFSET ADJUSTMENT

1.Connect CH1 of the oscilloscope to **TJ501** (+) and **TJ502** (-) of the main P.C.B. Connect CH2 of the oscilloscope to **TJ101** (+) and **TJ502** (-)of the main P.C.B.
Oscilloscope setting:VOLT.....200mV(both channels)
SWEEP.....0.5msec.
INPUT.....AC(CH1), DC(CH2)
MODE.....NORM
(Triggering via CH1)
2.Turn **ON** the power switch of the player and insert the magazine with the test disc (SZZP1057C).
3.Set the player to the play mode.
4.Check the waveform of CH1 and CH2 on the oscilloscope and adjust **VR103**, so that the waveform around the triggering point becomes as shown in the illustration.



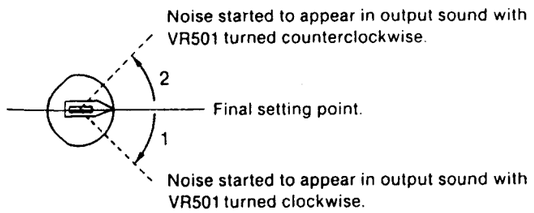
TRACKING OFFSET BALANCE ADJUSTMENT

1. Set the selector switch of the servo gain adjuster to **2** and ON-OFF switch to **ON**.
2. Set the low frequency oscillator to a frequency of **1kHz** and an output voltage of **200mVp-p**. Then connect the oscillator to **OSC** (+) and **GND** (-) terminals of the servo gain adjuster.
3. Connect CH1 of the oscilloscope to **TJ501** (+) and **TJ502** (-)of the main P.C.B.
   Oscilloscope setting: VOLT.....200mV
   SWEEP.....0.5msec.
   INPUT.....AC
4. Turn **ON** the power switch of the player and insert the magazine with a test disc (SZZP1014F or SZZP1054C).
5. Set the player to the play mode.
6. Set the selector switch of the servo gain adjuster from "**2**" to "**1**".
7. Adjust **VR106** so that the output waveform is as shown (jitter is minimized).
8. Shift the selector switch of the servo gain adjuster from "**1**" to "**2**".
9. Turn **OFF** the power switch of the player.
10. Disconnect the servo gain adjuster, and insert the shorting connector of CN102 to the original position.

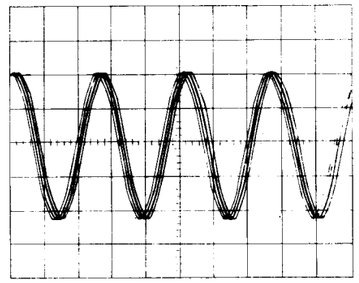


PLL ADJUSMENT

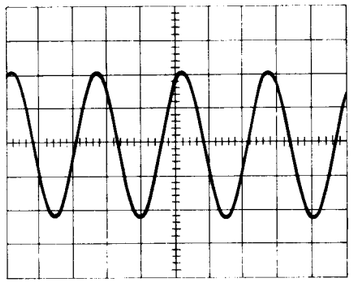
1. Connect CH1 of the oscilloscope to the **LINE OUT terminal** (either of Lch or Rch) and **ground.**
   Oscilloscope setting: VOLT.....1V
   SWEEP.....1msec.
   INPUT.....DC
2. Turn **ON** the power switch of the player and insert the magazine with the test disc (SZZP1054C).
3. Play **Track No.6 (wedge 0.7mm)** of the test disc.
4. Check the waveform displayed on the oscilloscope and adjust **VR501** in the following steps.
   Step 1. Turn **VR501** clockwise slowly and observe the point at which the waveform on the oscilloscope begins to be disturbed.
   Step 2. Turn **VR501** counterclockwise slowly and observe the point at which the waveform on the oscilloscope begins to be disturbed.
   Step 3. Set **VR501** in the middle between the points observed in the above steps "1" and "2".


Noise started to appear in output sound with VR501 turned counterclockwise.
2
Final setting point.
1
Noise started to appear in output sound with VR501 turned clockwise.

•NG



•OK



CHECK OF PLAY OPERATION AFTER ADJUSTMENT

Check of skip search
1. Play an ordinary disc.
2. Press the skip button and verify skip search operation (forward and reverse).

Check of manual search
1. Play an ordinary disc.
2. Press the manual search button and verify that smooth manual search can be performed at low and high speeds (forward and reverse).

Check of playability
1. Play the test disc (SZZP1054C).
2. Play the track No.6 (wedge 0.7mm) and verify that there is no skip sound or noise.
3. Play the track No.13 (black dot 0.7mm) and verify that there is no skip sound or noise.

OPTICAL PICKUP ADJUSTMENT

Measuring Instruments and Special Tools
- Two-channel oscilloscope (with trigger) of 30MHz or over
- Test discs
  Test disc (SZZP1014F) old or new type
  Inspection test disc (SZZP1054C)
  Uneven disc (SZZP1056C)
- Hexagonal wrench (SZZP1044C...1.5mm)
- Hexagonal wrench (1.27mm)
- 0.9 mm feeler gauge (RZZ0297)
- Screw lock paint (RZZ0L01)

Adjustment Procedure

- If the optical pickup and spindle motor are replaced, adjust it according to the following procedure.

Step 1: Make the temporary settting of each VR. (Refer to page 31.)

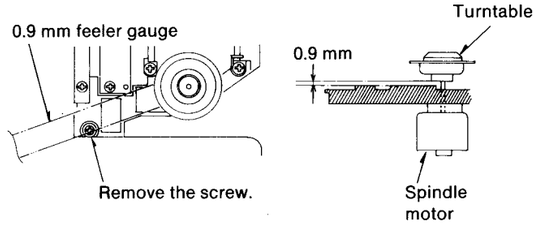
Step 2: Turntable height adjustment.. (Refer to page 34.)

Step 3: Mechanical adjustment (Refer to page 34.)

Step 4: Electrical adjustment. (Refer to page 30.)

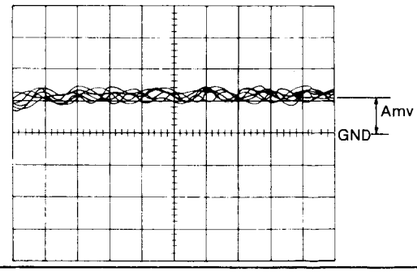
TURNTABLE HEIGHT ADJUSTMENT

1. Insert the 0.9 mm feeler gauge (RZZ0297) between the turntable and the loading base as shown below.



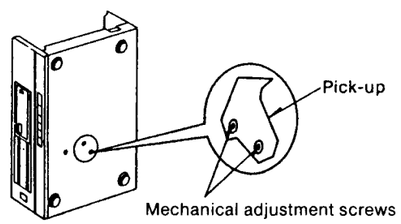
2. Tighten the turntable set-screw by using a 1.27 mm hexagonal wrench.
3. Connect CH1 of the oscilloscope to **TJ102** (+) and **TJ502** (−) of the main P.C.B. through the filter. (Refer to page 29.)
   Oscilloscope setting: VOLT.....50 mV
   SWEEP...1 msec.
   INPUT....DC
4. Set the oscilloscope to DC zero balance.
5. Turn **ON** the power switch of the player and insert the magazine with a test disc (SZZP1014F or SZZP1054C).
6. Set the player to the play mode.
7. Measure the DC level (AmV) displayed on the oscilloscope.

- If [the value of] A is within [the range of] ±60 mV, the turntable height is correct. If not within this range, make the necessary slight adjustments using a feeler gauge or the like.
  If A is more than +60 mV, make the turntable lower.
  If A is less than −60 mV, make the turntable higher.



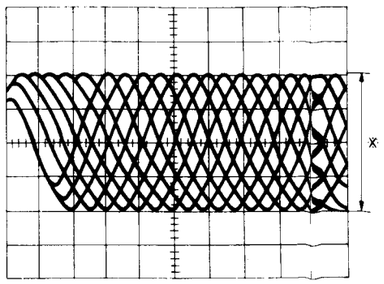
MECHANICAL ADJUSTMENT

1. Connect CH1 of the oscilloscope to **TJ501** (+) and **TJ502** (-) of the main P.C.B.
   Oscilloscope setting: VOLT.....200mV
   SWEEP.....0.5μsec.
   INPUT.....AC
2. Turn **ON** the power switch of the player and insert the magazine with the test disc (SZZP1056C).
3. Using the manual search buttons, move the pickup so that the mechanical adjustment screws line up with the adjustment holes in the bottom panel.



Note: The mechanical adjustment screws have been already locked with screw lock paint at the factory. It might be hard to turn them.

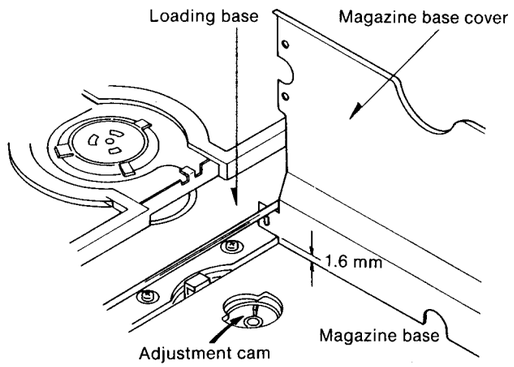
4. Monitoring RF signal on the oscilloscope, adjust **the two adjusting screws** alternately with the 1.5 mm hexagonal wrench (SZZP1044C) so that the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
5. Turn **OFF** the power switch of the player.
6. After the adjustment, apply **screw lock paint(RZZ0L01)** to the adjusting screws.



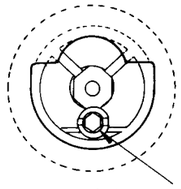
LOADING BASE HEIGHT ADJUSTMENT

1. Turn **ON** the power switch of the unit without the disc magazine.
2. Remove the magazine base cover.
   (Refer to "HOW TO REMOVE THE MAGAZINE BASE COVER" on page 14.)
   Note: The magazine base cover can be used as the gauge for loading base height adjustment.
3. Set the gauge as shown in Fig. 1.
4. Adjust the loading base height 1.6 mm with the adjustment cam by using a small flat screwdriver. (Fig.2)
   • To raise the loading base .....Turn clockwise.
   • To lower the loading base.....Turn counterclockwise.

   Standard height: 1.6 ± 0.2 mm
5. Turn **OFF** the power switch.
6. Turn **ON** the power switch to make sure the loading base height is set to 1.6 mm.



(Fig. 1)



(Fig. 2)

■ TERMINAL FUNCTION OF LSI

• **MN6617 (Digital Signal Processing : EFM Decoder, Error Correction, CLV Servo)**

Pin No.	Mark	I/O	Function
1	BLKCK	O	Sub-code block (Q data) clock (75 Hz)
2	$\overline{\text{CLDCK}}$	O	Sub-code frame (Q data) clock (7.35 kHz)
3	$\overline{\text{SUBQ}}$	O	Sub-code (Q data) output
4	CRC	O	Sub-code (Q data) CRC check (Not used, open)
5	$\overline{\text{RST}}$	I	Reset signal input (reset at "L")
6	MLD	I	Command load input
7	MCLK	I	Command clock input
8	MDATA	I	Command data input
9	DMUTE	I	Muting control (muting ON at "H")
10	$\overline{\text{TRON}}$	I	Tracking servo ON signal (tracking servo ON at "L")
11	STAT	O	Processing condition (CRC, OTC, CLVOK, TT STOP) output
12	SMCK	O	Clock output (4.2336 MHz)
13	PMCK	O	Pitch control clock output (Not used, open)
14	ITC	I	Track counter input signal (Not used, open)
15	$\overline{\text{TEST}}$	I	Test mode selection (Not used, connected to +5V)
16	X2	O	Clock output (16.9344 MHz)
17	X1	I	Clock input (16.9344 MHz)
18	SEL	I	DA output parallel/serial selection (serial at "L")
19	LDG	O	L channel deglitch signal (Not used)
20	RDG	O	Clock output (Spindle motor control)
21	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H")
22	IPFLAG	O	Interpolation flag (interpolation at "H")
23	FLAG0	O	Error flag (error at "H")
24	FLAG6	O	16 K RAM address reset signal (reset at "H")
25	XCK	O	Clock (16.9344 MHz) output
26	DA15	O	16-bit data output
27	DA14	O	16-bit data output (Not used)
28	DA13	O	16-bit data output
29	DA12	O	16-bit data output (Not used)
30	DA11	O	16-bit data output (Not used)
31	GND	I	GND terminal
32	DA10	O	16-bit data output
33	DA9	O	16-bit data output (Not used)

Pin No.	Mark	I/O	Function
34	DA8	O	16-bit data output (Not used)
35	DA7	O	16-bit data output (Not used)
36	DA6	I/O	16-bit data output (Not used)
37	DA5	O	16-bit data output (Not used)
38	DA4	O	16-bit data output (Not used)
39	DA3	O	16-bit data output (Not used)
40	DA2	O	16-bit data output (Not used)
41	DA1	O	16-bit data output (Not used)
42	DA0	O	16-bit data output (Not used)
43 ⟆ 50	D7 ⟆ D0	I/O	16 K RAM data output
51	RAMOE	O	16 K RAM $\overline{\text{OE}}$ signal
52	RAMWE	O	16 K RAM $\overline{\text{WE}}$ signal
53 ⟆ 63	RAMA 0 ⟆ RAMA10	O	16 K RAM address signal (RAMA0 : LSB, RAMA10: MSB)
64	PC	O	Spindle motor ON signal (ON at "L")
65	EC	O	Spindle motor drive signal
66	FG	I	Spindle motor FG signal input
67	VCNT	—	———
68	REXT	—	———
69	VDD	I	Power supply (Connected to +5V)
70	PD	—	———
71	PCKO	—	———
72	PCK	I	PLL extract clock input
73	VDD	I	Power supply (connected to +5V)
74	EFM	I	EFM signal input (PLL)
75	SRF	I	EFM signal input (DSL)
76	DO	I	Drop-out signal (Drop-out at "H")
77	CLVS	O	11T servo OK signal (OK at "H")
78	FPC	O	PLL frequency comparision signal
79	BSSEL	O	PLL frequency in take operation signal. (Not used)
80	SRFO	—	———
81	NSRF	—	———
82	RF	—	———
83	SUBC	O	Sub-code serial output data (Not used)
84	SBCK	I	Clock for sub-code serial output (Not used)

• AN8370S (Optical Servo Control)

Pin No.	Mark	I/O	Function
1	VEE	I	Power supply (connected to −5V)
2	LSA	I	Phase difference input (A)
3	GND	I	GND terminal
4	LSB	I	Phase difference input (B)
5	APC	O	Auto laser power control output
6	TEOUT	O	Tracking error signal output
7	TEG	I	Tracking error gain adjusting input
8	TE+	I	Phase difference-to-voltage conversion (+)
9	TE−	I	Phase difference-to-voltage conversion (−)
10	APC−	I	Laser power inversion input
11	C-MEM	I	Capacitor connection for phase difference memory
12	APC+	I	Laser power input
13	VREF	O	Reference current generation
14	SENSE	O	Selector output (track-crossed)
15	HIN	I	Tracking hold circuit input
16	HOUT	O	Tracking hold circuit output
17	SPCNT	O	Track-cross speed control output (not used, open)
18	C-MSP	I	Track-cross reference speed setting capacitor connection (not used, open)
19	C-AF	I	Auto focus timer capacitor connection
20	KICK	O	Track kick signal output
21	VCC	I	Power supply (connected to +5V)

Pin No.	Mark	I/O	Function
22	CNT1	I	Control input ($\overline{\text{FOON}}$: Focus servo ON signal)
23	CNT2	I	Control input ($\overline{\text{TRON}}$: Tracking servo ON signal)
24	CNT3	I	Control input (KICKF: Kick direction [Forward] command)
25	CNT4	I	Control input (KICKR: Kick direction [Reverse] command)
26	$\overline{\text{F-LOCK}}$	O	Focus lock signal output
27	C-FBDO	O	Capacitor connection for inversion RF high speed detection
28	C-SBDO	O	Capacitor connection for inversion RF low speed detection
29	C-SBRT	O	Capacitor connection for non-inversion RF low speed detection
30	C-FBRT	O	Capacitor connection for non-inversion RF high speed detection
31	RF OUT	O	RF signal output
32	BDO	O	Drop-out detection output
33	RF IN	I	RF signal input
34	S-OUT	O	Focus search signal output
35	C-LW	I	Capacitor connection for triangular wave generation
36	FE-OUT	O	Focus error signal output
37	FEG	I	Focus error gain adjusting input
38	FE-REF	I	Focus error comparison voltage generation
39	PDB	I	Photo detector current input (B)
40	IVB	O	Current to voltage conversion (B)
41	IVA	O	Current to voltage conversion (A)
42	PDA	I	Photo detector current input (A)

• AN8371S (Data slice and PLL)

Pin No.	Mark	I/O	Function
1	VEE	I	Power supply (connected to −5V)
2	SRF	O	RF signal output data-sliced into digital value
3	EFM	O	EFM signal output synchronized with PCK
4	D-GND	I	GND terminal (digital system)
5	PCK	O	Clock output extracted from SRF
6	VCC	I	Power supply (connected to +5V)
7	VA	I	VCO free ran frequency adjusting current input
8	VC1	I	Capacitor connection for VCO oscillation frequency
9	VC2	I	Capacitor connection for VCO oscillation frequency
10	VR	I	Resistor connection for VCO oscillation frequency
11	PD	I	Capacitor connection for PLL DO protection
12	PL1	I	PLL loop filter constant connection

Pin No.	Mark	I/O	Function
13	PL2	I	PLL loop filter constant connection
14	FPC	I	Frequency comparison error signal input
15	RF	I	RF signal input
16	ARF	O	RF signal output with AGC applied
17	AGC	I	ARF signal input for AGC drop-out detection
18	AC	I	AGC loop filter constant connection
19	DO	O	Drop-out detection pulse output
20	A-GND	I	GND terminal (analog system)
21	DSL	I	RF signal input for data slicer
22	SLC	I	Slice level control signal input
23	FC1	I	Data slicer filter capacitor connection
24	FC2	I	Data slicer filter capacitor connection

• MN15283PEC-1 (System Control)

Pin No.	Mark	I/O	Function
1	GND	I	GND terminal
2	XO	O	Not used, open
3	X1	I	Optical servo condition input
4	M-RLY	I	Muting control
5	MDATA	O	Command data output
6	MCLK	O	Command clock output
7	MLD	O	Command load output
8	SLOW	O	Motor drive control
9	FOW/REV	O	Motor drive control
10	LOADING	O	Motor drive control
11	HIGHT	O	Motor drive control
12	SYNC	I	Not used, open
13	RST	I	Reset signal input (reset at "L")
14	BLKCK	I	Sub-code block (Q-data) clock (75kHz) input
15 ~ 18	P50 ~ P53	I	Key scan input
19	CLOCK	I	Sub-code frame clock (7.35kHz)
20	SUBQ	I	Sub-code "Q" data input
21	—	—	Not used, open
22	—	—	Not used, open
23	TRV-R	O	Traverse reverse command signal
24	TRV-F	O	Traverse forward command signal
25	CONT4	O	Optical servo IC control signal (KIKCR: Kick direction [Reverse] command)

Pin No.	Mark	I/O	Function
26	CONT3	O	Optical servo IC control signal (KICKF: Kick direction [Forward] command)
27	CONT2	O	Optical servo IC control signal (TRON: Tracking servo)
28	CONT1	O	Optical servo IC control signal (FOON: Focus servo)
29	STAT	I	Key input strobe and processing status input from signal processing LSI travers position detector
30	HIGHT	I	Elevator height signal input
31	FLOCK	I	Optical servo condition (Focus) input
32	SENSE	I	Optical servo condition (Track cross) input
33	PAUSE	O	Not used, open
34	PLAY	O	Not used, open
35	DAC	O	Not used, open
36	VPP	I	FL drive power supply (connected to −32V)
37 ~ 52	DO ~ DF	O	FL glide signal and key scan signal
53 ~ 61	S8 ~ S0	O	FL anode signal
62	VDD	I	Power supply (connected to +5V)
63	OSC2	I	Clock terminal
64	OSC1	I	Clock input

• MN1550PEB (Remote Control Signal Processing)

Pin No.	Mark	Signal	I/O	Function
1	VDD	——	I	Power supply (connected to +5V)
2	OSC1	SMCK	I	Clock input
3	OSC2	——	——	Not used, open
4	P22	——	——	Not used, open
5	RST	RESET	I	Reset signal input
6	P21	——	——	Not used, open
7	P20	——	I	Remote control signal input
8	IRQ	——	I	Program enable/de-enable control

Pin No.	Mark	Signal	I/O	Function
9	P31	SYNC	O	Not used, open
10 ~ 13	P13 ~ P10	Data	I	Key strobe
14 ~ 17	P03 ~ P00	Data	I	Key strobe
18	VSS	GND	I	GND terminal

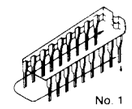
- **SM5807ES (Digital Filter)**

Pin No.	Mark	I/O	Function
1	XT	I	Oscillator input circuit
2	XT	O	Oscillator output circuit
3	CKSL	I	CKSL = H: 16.9344MHz or 17.2872MHz crystal oscillator for XT or external input CKSL = L: 8.4672MHz or 8.6436MHz crystal oscillator for XT or external input
4	CKO	O	Clock output
5	LRCI	I	Synchronous clock input
6	DIN	I	Serial data input
7	BCKI	I	Serial input bit clock input
8	VSS	—	GND terminal (0V)

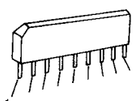
Pin No.	Mark	I/O	Function
9	SCSL	I	SCSL = H: System clock=192fs (fs: sampling frequency) SCSL = L: System clock=196fs (fs: sampling frequency)
10	DGR	O	Rch deglitch signal (176.4kHz)
11	DGL	O	Lch deglitch signal (176.4kHz)
12	DOUT	O	Serial data output
13	WDCO	O	Output control clock (352.8kHz)
14	LRCO	O	Output control clock (176.4kHz)
15	BCKO	O	Serial output bit clock (8.4672MHz or 8.6436MHz)
16	VDD	—	Power supply terminal

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

MN15283PEC-1.... 64 pin
MN74HC4304 ..... 20 pin

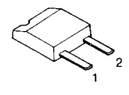


M5218 ..... 8 pin
SVIM5193BL ..... 5 pin

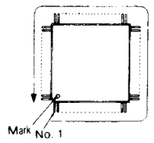


AN8370S	42 pin
SVICXK5816M	24 pin
AN8371S	
MN1550PEB	18 pin
SM5807ES	16 pin
PCM56HP	
AN6554NS	14 pin
MN6636S	10 pin
SVIBA4560F	8 pin
BA4560F	
NJM5532M	
SVIBA4558	

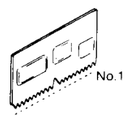
SRUF15

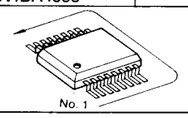


MN6617 ..... 84 pin

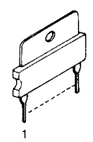


AFZ25F ..... 7 pin

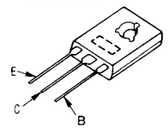




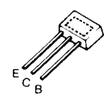
BA6247 ..... 10 pin



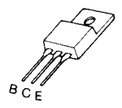
2SA885Q
2SC1846



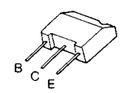
2SA1309 UN4112
2SC3311 SVTDTC123
2SD1450
2SB1238
2SD1862
2SD3311



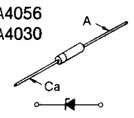
2SB1185
2SD1762



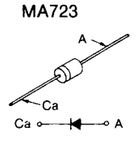
2SB911M 2SC2021
2SB1240 2SD1227
2SD636
2SD1330R



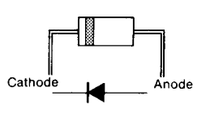
MA4110 MA4330
MA4082 MA4062
MA4056
MA4030



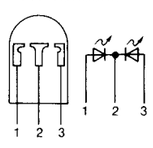
MA165
MA723



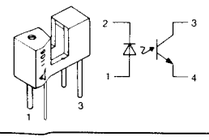
SVD1SR35200A



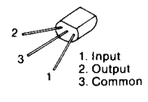
AYBG5305S



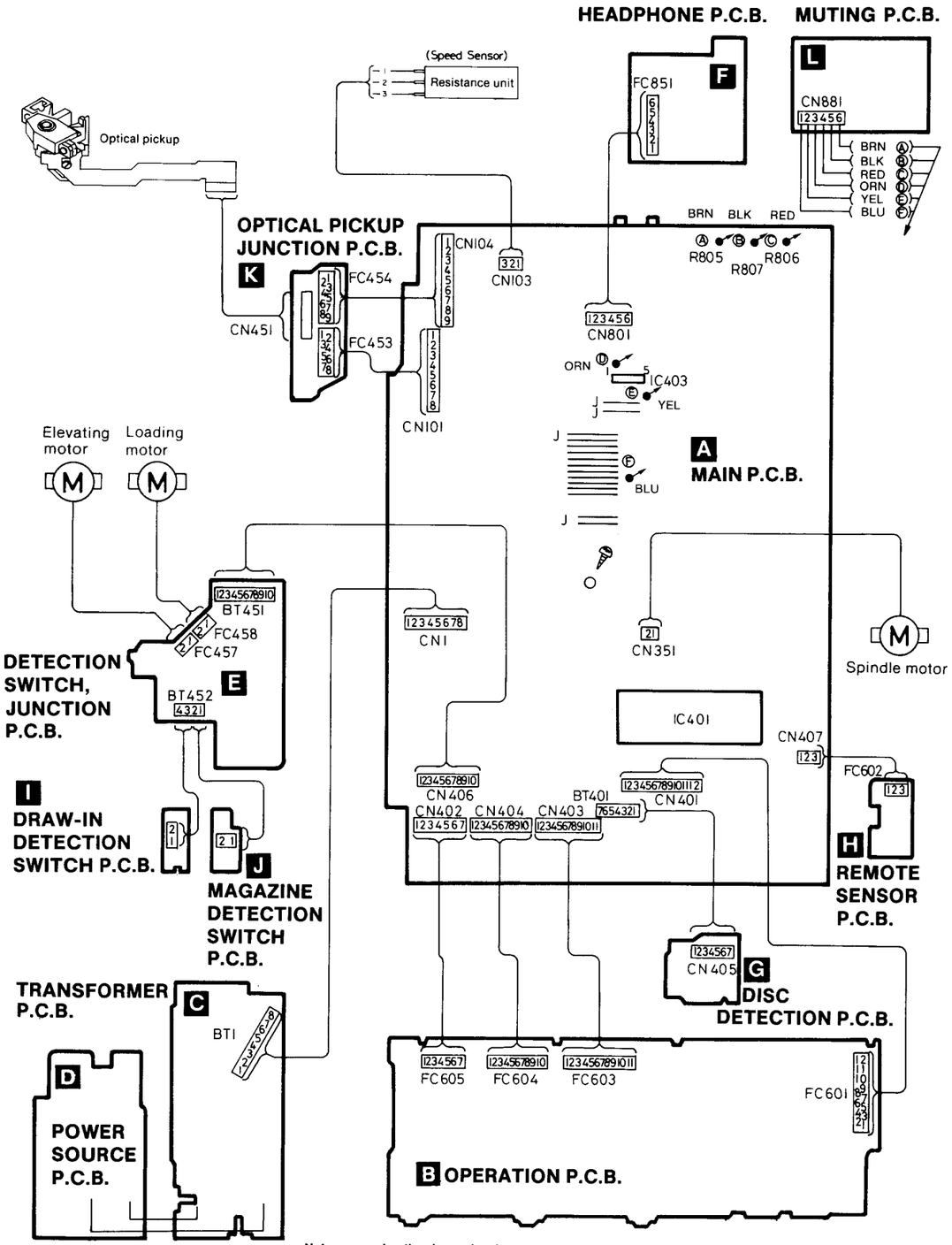
SVDGP1S53



M5236L



■ PRINTED CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



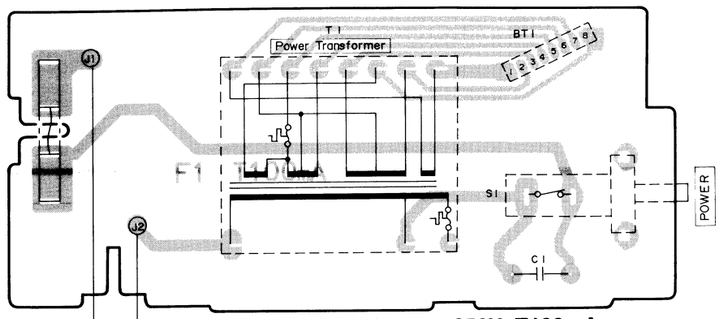
Note concerning the change in microcomputer (IC401)
The system control microcomputer (IC401 in the diagram) was changed in mid-production. A new microcomputer is supplied.

	Old part	New part
Part No.	MN15283PEC	MN15283PEC-1

Notes:
- The new microcomputer can be used in both new and old units.
- In units with the new microcomputer, one circuit has been discontinued (L P.C.B.).
- When changing to the new microcomputer in a unit with the old microcomputer, remove the above-mentioned L P.C.B.

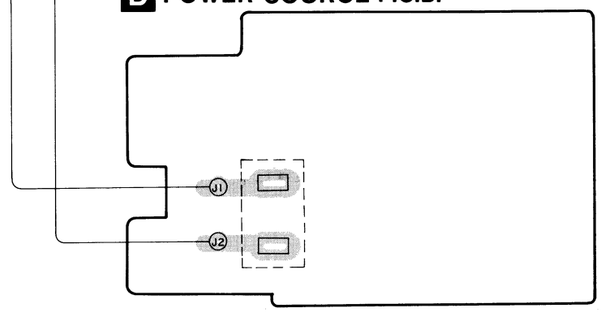
C TRANSFORMER P.C.B.

- For [E], [EK], [EG], [EB], [EH], [EF], [Ei], and [XL] areas

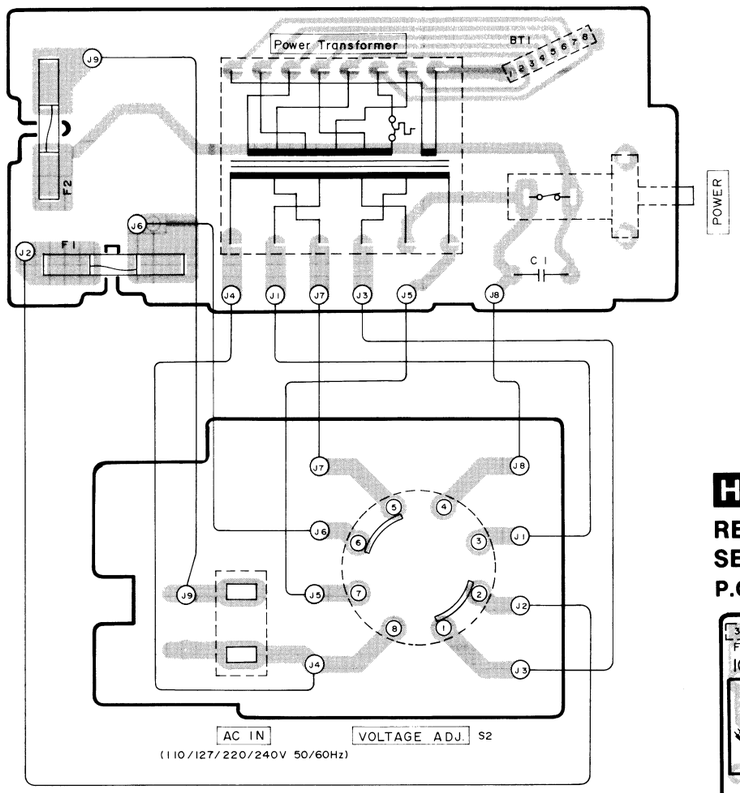


F1 . . . . . For [EK], [XL] areas: 250V, T100mA
Except [EK], [XL] areas: 250V, T120mA

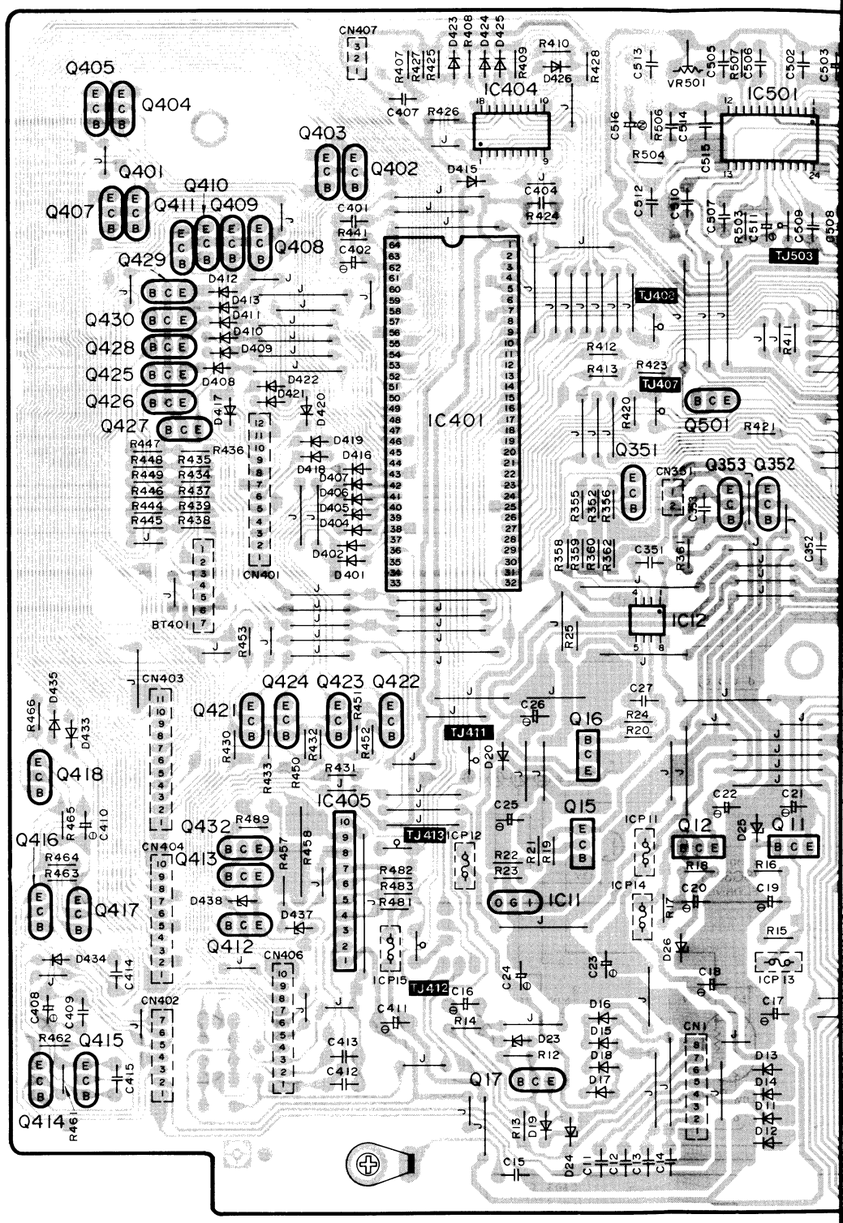
D POWER SOURCE P.C.B.



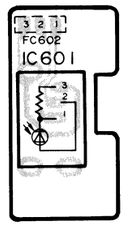
- For [XA], [XB], [PA], [PE] and [PC], areas



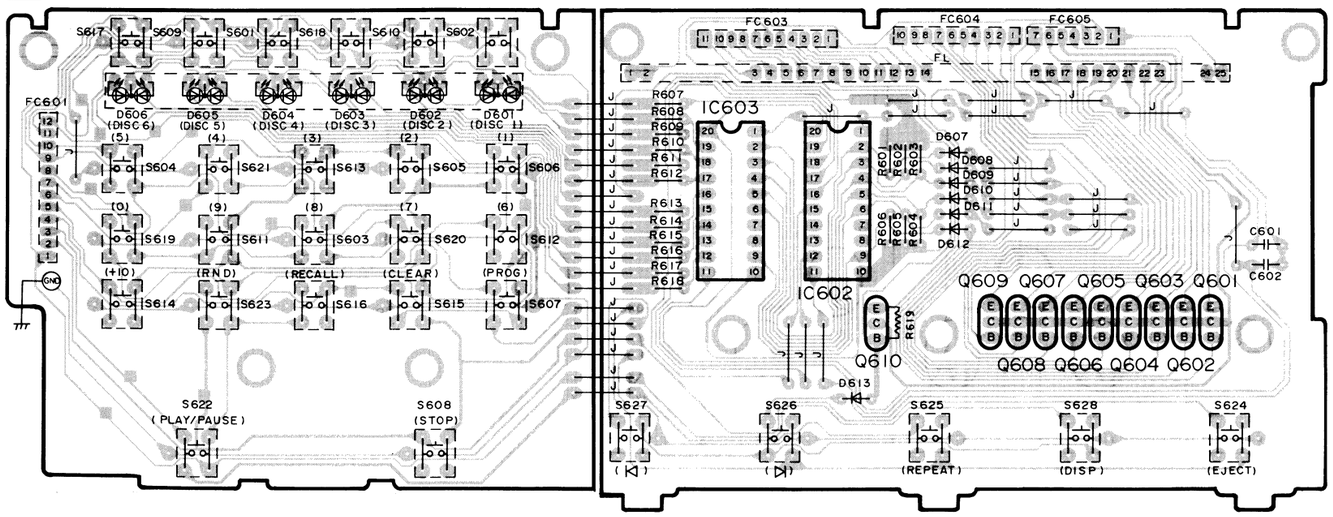
A MAIN P.C.B.



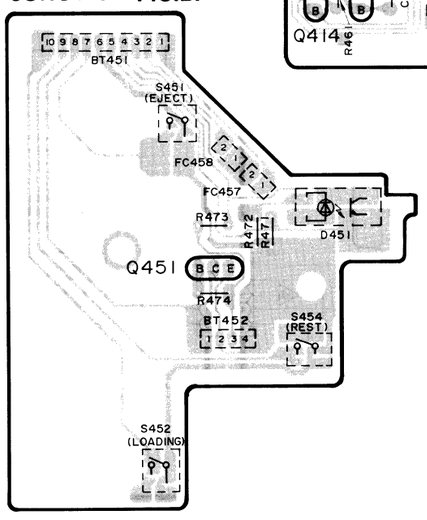
H REMOTE SENSOR P.C.B.



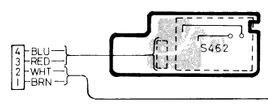
B OPERATION P.C.B.



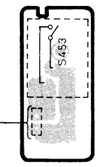
E DETECTION SWITCH, JUNCTION P.C.B.



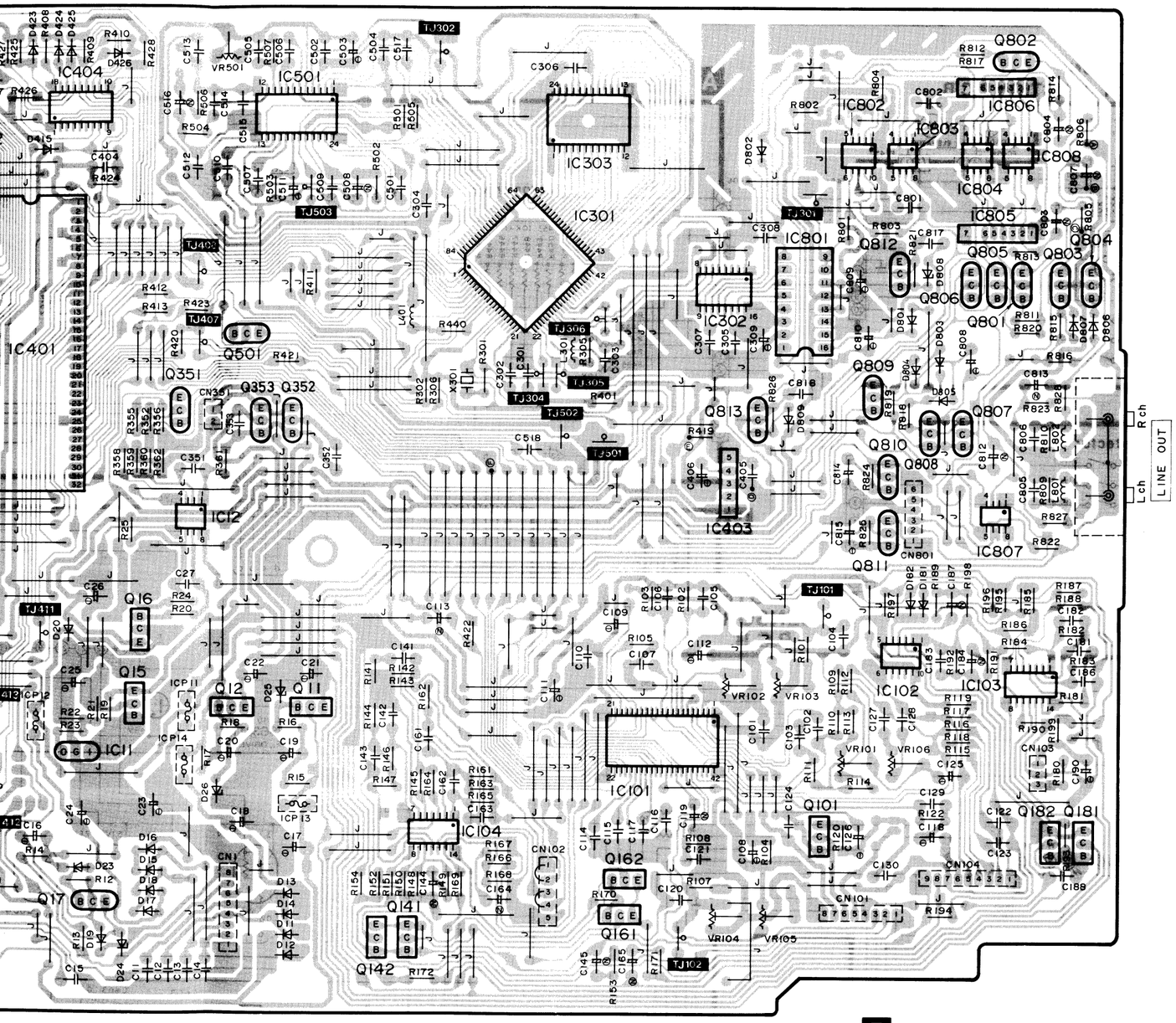
J MAGAZINE DETECTION SWITCH P.C.B.



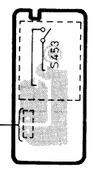
I DRAW-IN DETECTION SWITCH P.C.B.



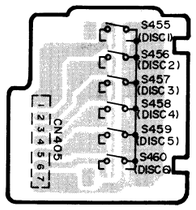
G



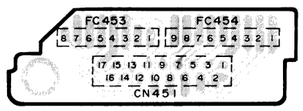
I DRAW-IN DETECTION SWITCH P.C.B.



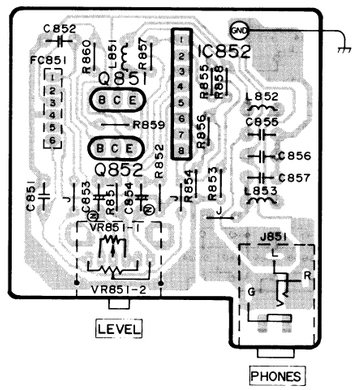
G DISC DETECTION SWITCH P.C.B.



K OPTICAL PICKUP JUNCTION P.C.B.

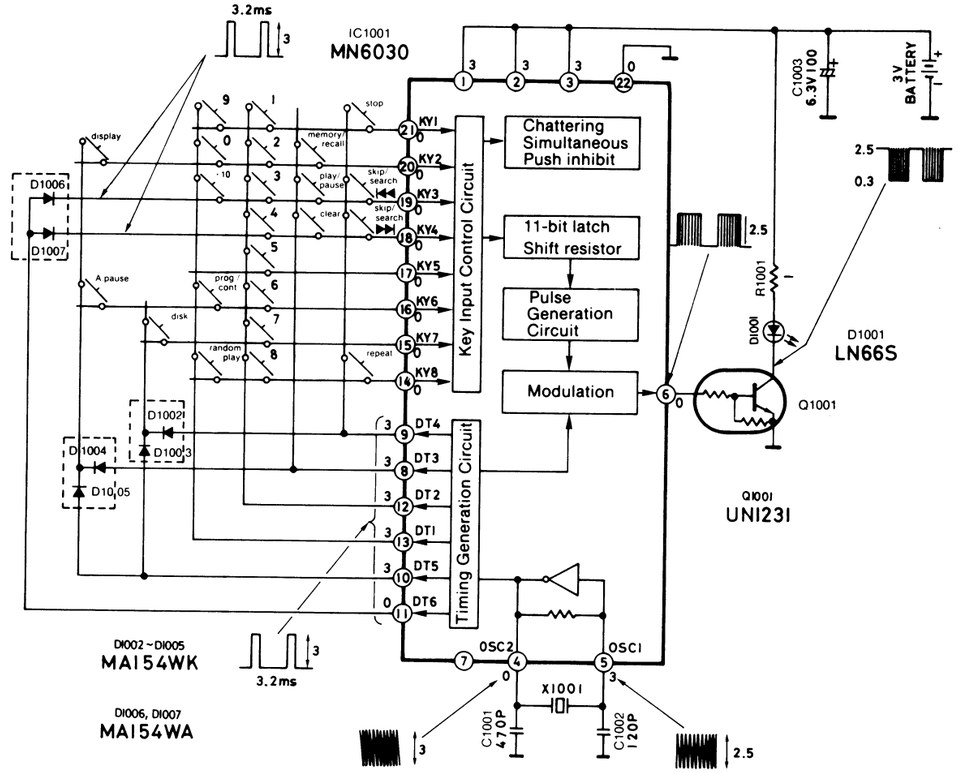


F HEADPHONE AMP. P.C.B.

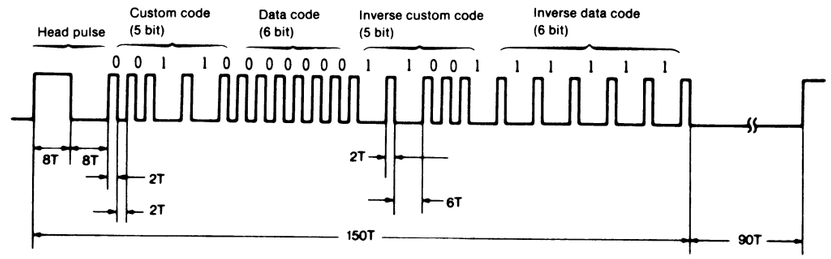


■ SCHEMATIC DIAGRAM OF REMOTE CONTROL UNIT

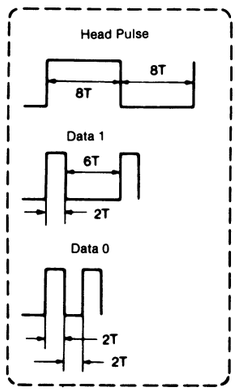
- **Remote control unit circuit**



- **Key number description and data code**



*1T= 0.454 ms~0.460 ms



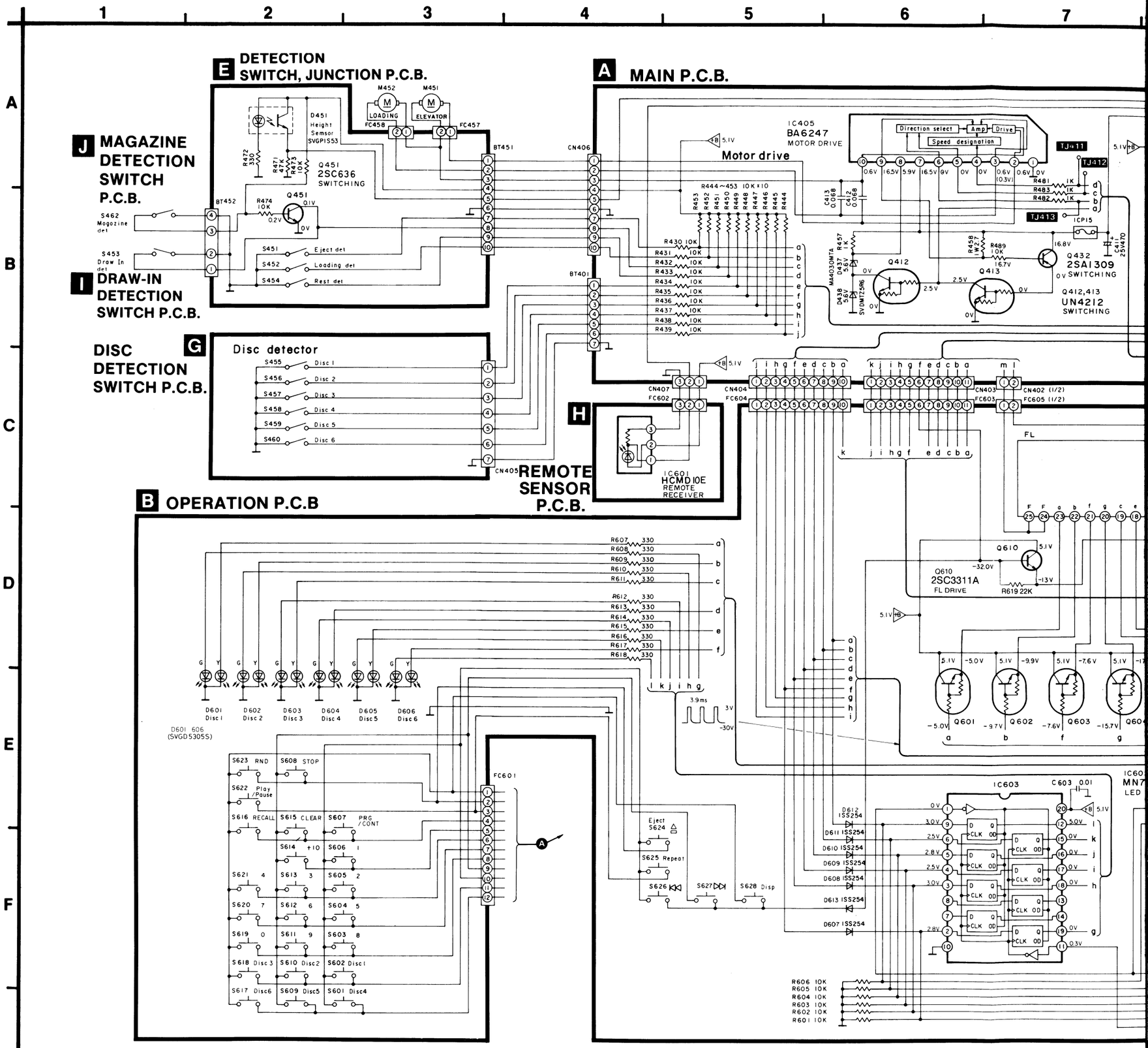
Function	Data code
stop	0 0 0 0 0 0
skip/search◀◀	0 1 0 0 0 0
skip/search▶▶	1 1 0 0 0 0
repeat	1 1 1 0 0 0
memory/recall	1 0 0 1 0 0
play/pause	0 1 0 1 0 0
clear	1 1 0 1 0 0
1	0 0 0 0 1 0
2	1 0 0 0 1 0
3	0 1 0 0 1 0
4	1 1 0 0 1 0
5	0 0 1 0 1 0

Function	Data code
6	1 0 1 0 1 0
7	0 1 1 0 1 0
8	1 1 1 0 1 0
9	0 0 0 1 1 0
0	1 0 0 1 1 0
+10	0 1 0 1 1 0
program/ continue	1 0 1 1 1 0
random play	1 1 1 1 1 0
disc	0 1 1 0 0 1
display	1 0 0 1 0 1
A.pause	1 0 1 1 0 1

■ SCHEMATIC DIAGRAM

Notes:

1. **S1** : Power switch in "**on**" position
2. **S2** : Voltage selector switch
   (For [XA], [XB], [PA], [PE] and [PC] areas)
3. **S451** : Eject detector switch
4. **S452** : Loading detector switch
5. **S453** : Draw in detector switch
6. **S454** : Reset detector switch
7. **S455** : Disc No.1 detector switch
8. **S456** : Disc No.2 detector switch
9. **S457** : Disc No.3 detector switch
10. **S458** : Disc No.4 detector switch
11. **S459** : Disc No.5 detector switch
12. **S460** : Disc No.6 detector switch
13. **S462** : Magazine detector switch
14. **S601** : Disc No.4 selector switch
15. **S602** : Disc No.1 selector switch
16. **S603~606** : Numeric switch (8, 5, 2, 1)
    S611~613 : Numeric switch (9, 6, 3)
    S619~621 : Numeric switch (0, 7, 4)
17. **S607** : Program/Continue switch
18. **S608** : Stop switch
19. **S609** : Disc No.5 selector switch
20. **S610** : Disc No.2 selector switch
21. **S614** : +10 switch
22. **S615** : Clear switch
23. **S616** : Recall switch
24. **S617** : Disc No.6 selector switch
25. **S618** : Disc No.3 selector switch
26. **S622** : Play/pause switch
27. **S623** : Random switch
28. **S624** : Eject switch
29. **S625** : Repeat switch
30. **S626** : Backward skip/search switch
31. **S627** : Forward skip/search switch
32. **S628** : Display switch
33. The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
    * The parenthesized are the values of voltage generated during playing (Test disc 1 kHz, L+R, 0 dB), others are voltage values in stop mode.
34. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
35. ———— : Positive voltage lines and negative voltage lines.
    ⟿ : Audio signal lines.



Direction select
Amp
Drive
Speed designation

TJ411
TJ412
TJ413

R481 1K
R483 1K
R482 1K
ICP15
C411 25V470
R458 1W2.7
R489 10K
Q432 2SA1309 SWITCHING
Q413
Q412,413 UN4212 SWITCHING

IC404 MN1550PEB MICRO COMPUTER
C407 0.1
R424 4.7K
C404 22P
R425 2.2K
R426 2.2K
R427 2.2K
R428 2.2K
D423
D424
D425
D426
D423~426 1SS254

Remote control

CN401

Q421~430 2SA1309 SWITCHING
Q421 Q422 Q423 Q424 Q425 Q426 Q427 Q428 Q429 Q430
R407 10K
R408 10K
R409 10K
R410 10K

D401,402,416~422 1SS254
D401 D402 D415 D416 D417 D418 D419 D420 D421 D422

D404 1SS254
D405 1SS254
D406 1SS254
D407 1SS254
D408 1SS254
D409 1SS254
D410 1SS254
D411 1SS254
D412 1SS254
D413 1SS254

Q414 Q415 Q416 Q417
R461 1K
R462 10K
R463 1K
R464 10K
Q414,416 UN4112 SWITCHING
Q415,417 DTC123 SWITCHING
C415 0.0001
C416 0.0001
D433 1SS254
D434 1SS254

Clock deley

IC401 MN15283PEC-2 SYSTEM CONTROL AND FL DRIVE

System control and FL drive

R423 4.7K
R422 4.7K
R421 4.7K
R420 4.7K
TJ407
R413 4.7K
R412 4.7K
R411 4.7K
R441 33K
L401 3.3μH
R440 1.5K
R401 4.7K
C401 0.05
C402 63V1
TJ408
R419 4.7K
IC403 M51953BL RESET
C405 0.01
C406 50V0.1

CN403
CN402 (1/2)
FC603
FC605 (1/2)

FL

Q610 2SC3311A FL DRIVE
R619 22K
Q601~609 UN4212 FL DRIVE
Q601 Q602 Q603 Q604 Q605 Q606 Q607 Q608 Q609

IC603
C603 0.01
IC602,603 MN74HC4304 LED DRIVE
IC602
C602 100P
C601 100P

Led drive

Q418 UN4112 SWITCHING
R465 10K
C410 50V0.33
R466 1K
D435 1SS254
Q401~405,407~411 UN4212 FL DRIVE

Enable deley

Q401 Q402 Q403 Q404 Q405 Q407 Q408 Q409 Q410 Q411

FL drive

Q181
2SD1762
TRAVERSE COIL DRIVE

Q182
2SB1185
TRAVERSE COIL DRIVE

Q141
2SD1862
FOCUS COIL DRIVE

Q142
2SB1240
FOCUS COIL DRIVE

Q161
2SD1862
TRACKING COIL DRIVE

Q162
2SB1240
TRACKING COIL DRIVE

SPEED/POSITION SENSOR

OPTICAL PICKUP

CN103 CN101 (1/2) CN104 CN102 CN101 (1/2)

TRV FOC TRK A1 A3 A4 A2 GND RF Vcc

Play 2ms 0.2V/DIV 0.8V

Play 2ms 0.1V/DIV 0.3V

Best eye adj.

Tracking balance adj.

Tracking gain adj.

Optical servo

IC101
AN8370S
OPTICAL SERVO

Q101
2SC4010
A.P.C

IC104
Focus servo

IC104
AN6554NS
TRK/FOC SERVO

Tracking offset adj.

Focus offset adj

IC103
AN6554NS
TRV SERVO

Tracking servo

IC102
MN6636S
SWITCHING

Focus gain adj.

Traverse servo

Play 2ms 5V/DIV

Play 2ms 2V/DIV

Play 2ms IV/DIV

Play 2ms 0.2V/DIV

Play 2ms IV/DIV

Play 2ms IV/DIV

Play 2ms IV/DIV

Play 2ms 0.2V/DIV

Play 2ms 0.5V/DIV

Play 0.2ms 1V/DIV

Play 0.23μs

Play 0.5μs IV/DIV

Play 0.5μs 2V/DIV

Play 1μs 0.5V/DIV

Play 2μs IV/DIV

Play 2μs IV/DIV

Play 5ms IV/DIV

Play 13ms

Play 25ms

Play 135ms

Play 0.2ms 2V/DIV

Play 2ms 0.5V/DIV

Play 1μs 0.5V/DIV

Play 1μs 7V/DIV

Play 2μs IV/DIV

Play 6μs

Data slice/PLL

IC501
AN8371S
PLL

Q501
UN4112
SWITCHING

TJ501 TJ502 TJ503

PLL adj

D/A Converter

IC801
PCM56P
D/A CONVERTER

16 bit latch
16 bit serial parallel
Control logic level shift
16 bit DAC

IC301
MN6617
DIGITAL SIGNAL PROCESSING

IC302
SM5807ES
DIGITAL FILTER

TJ304 TJ305 TJ306

X301 16.9344MHz

16.9344MHz

Digital signal processing

Digital filter

IC303
CXK5816M
16K RAM

Q351
UN4112
SWITCHING

Q352
2SD1862
MOTOR DRIVE

Q353
2SB1240
MOTOR DRIVE

IC12
SVIBA4558F
MOTOR DRIVE

SPINDLE MOTOR

Spindle motor control

26 27 28 29 30 31 32 33 34 35

A B C D E F

C TRANSFORMER P.C.B.

- For [E], [EK], [EG], [EB], [EH], [EF], [Ei] and [XL] areas

D POWER SOURCE P.C.B.

F1.....
For [EK], [XL] areas : 250V, 100mA
Exept [EK], [XL] areas : 250V, 120mA

AC220/240V 50Hz

- For [XA], [XB], [PA], [PE] and [PC] areas.

AC110/127/220/240V (50/60Hz)

F HEADPHONE AMP. P.C.B.

J851 HEADPHONES

IC852 SVIM5218 H.P AMP
Q852 2SD1450 MUTING

FC851 CN801

IC807 BA4560F H.P AMP
Q807 UN4112 SWITCHING
Q808 UN4212 SWITCHING

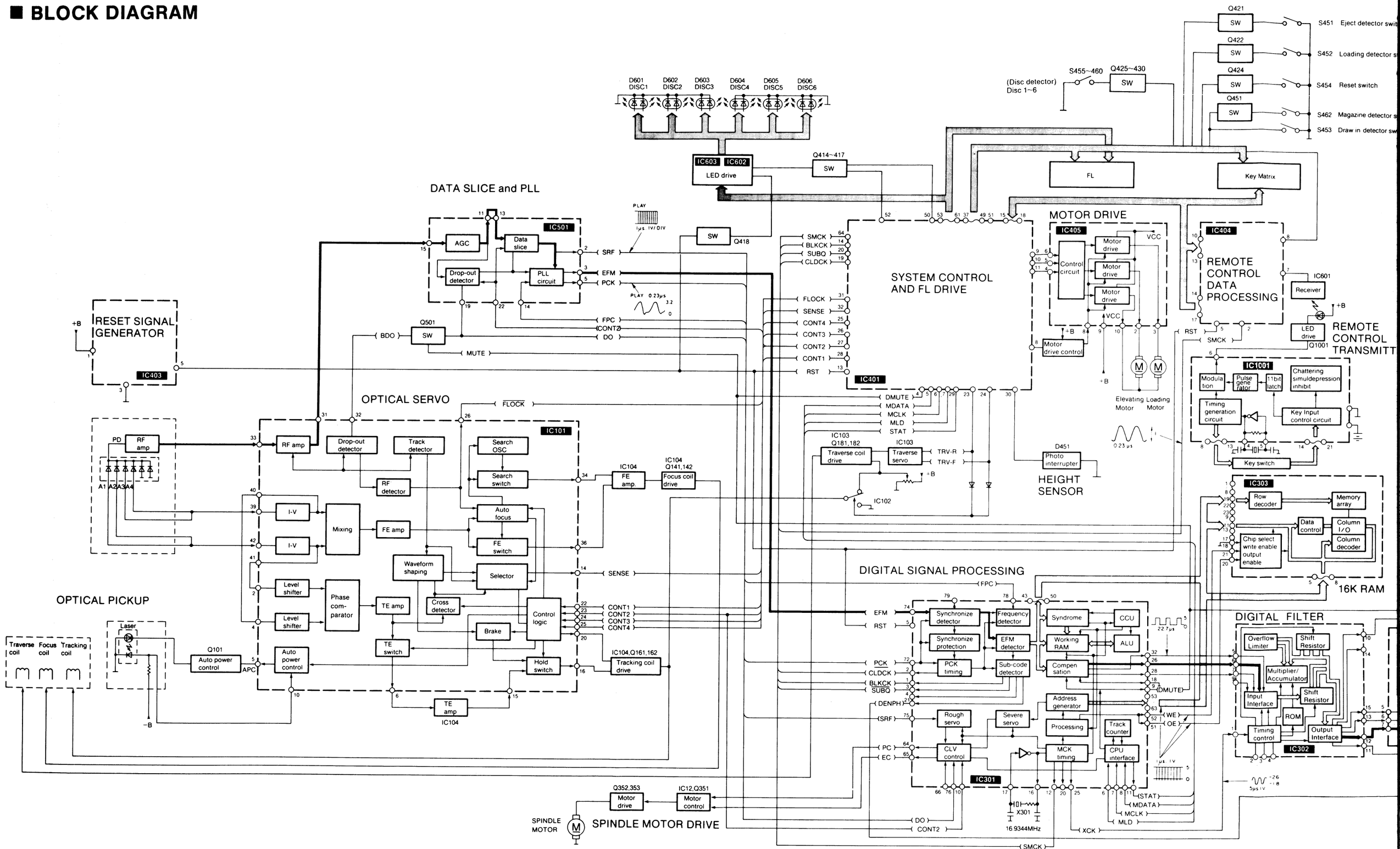
Power source
Rectifier
Q17 2SB1238 REGULATOR
Q11 2SD1227M REGULATOR
Q12 2SB911B REGULATOR
IC11 M5236L REGULATOR
Q15 2SB1185 REGULATOR
Q810 2SC3311 REGULATOR
Q811 2SA1309 REGULATOR
IC12 BA4558F REGULATOR
Q16 2SA885 REGULATOR
ICP11,12 SRUF15 PROTECTOR
Play 0.5μs 2V/DIV
PLL adj
D/A Converter
IC801 PCM56P D/A CONVERTER
16 bit latch
16 bit serial parallel
Control logic level shift
16 bit DAC
Q813 2SA1309 REGULATOR
Q812 2SC3311 REGULATOR
Q809 UN4112 SWITCHING
Low Pass Filter
IC805 AFZ25F
IC806 AFZ25F L.P.F
IC803 NJM5532M AMP
IC804 BA4560F AMP
IC808 BA4560F AMP
Q801 2SC3311 SWITCHING
Q803, 804 2SD1450 MUTING
IC302 SM5807ES DIGITAL FILTER
IC802 MN6636S DEGLITCH
Play 0.2μs 1V/DIV
Play 1μs 2V/DIV
Play 2μs 2V/DIV
Play 1kHz 6V
TJ301
TJ304
TJ305
TJ306
Digital filter
Q806 UN4212 SWITCHING
Q805 UN4112
Q802 2SC3311 SWITCHING
Audio
L ch
R ch
LINE OUT

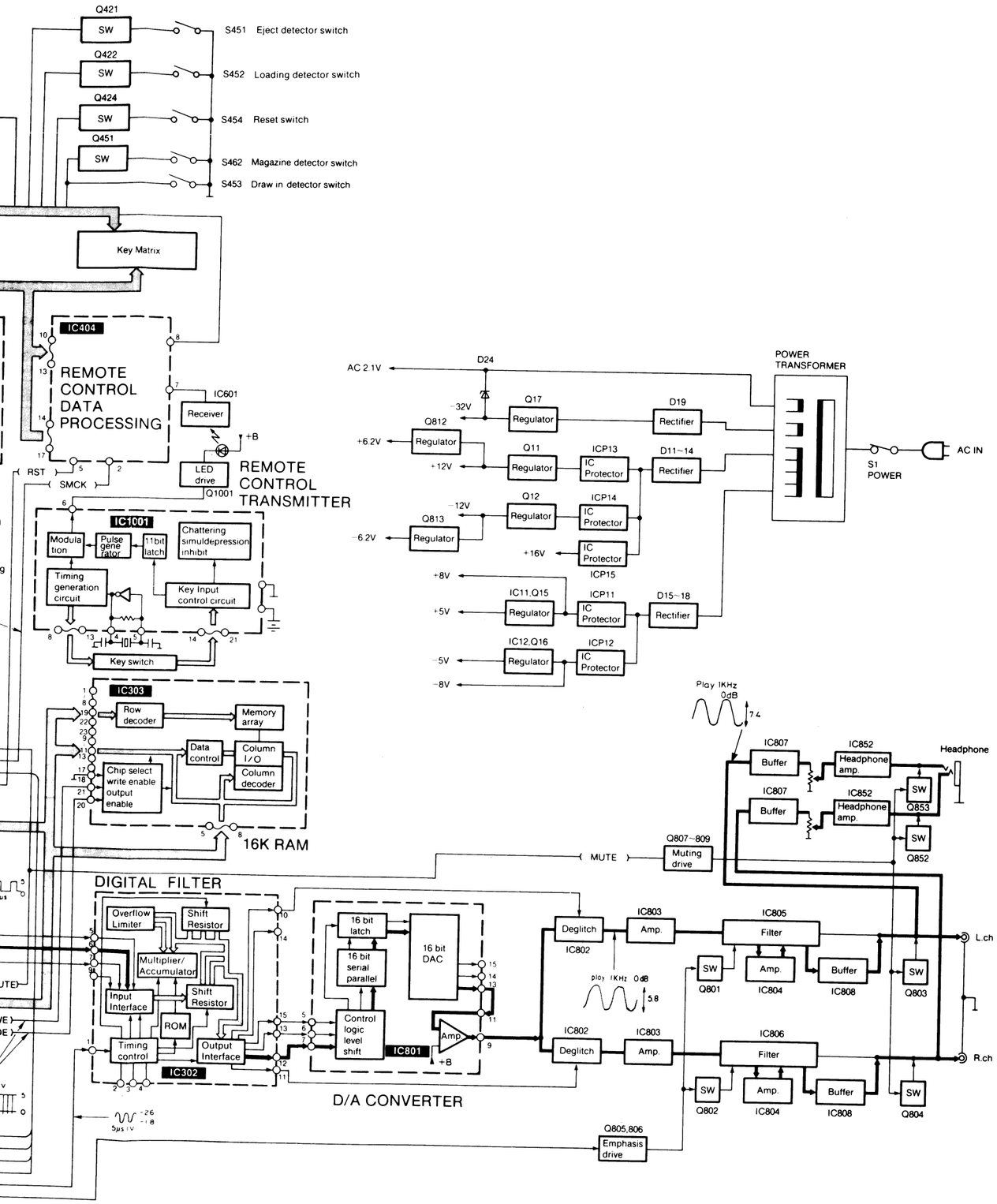
- **Caution!**

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

■ BLOCK DIAGRAM





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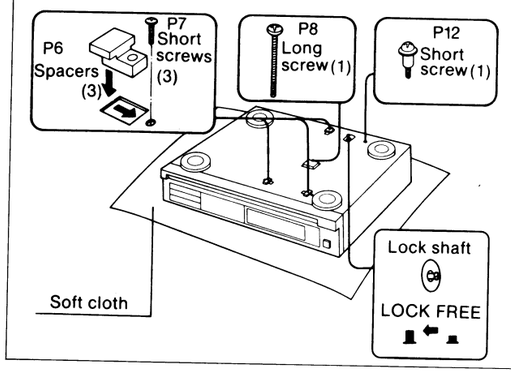
SL-P600C

■ PACKING

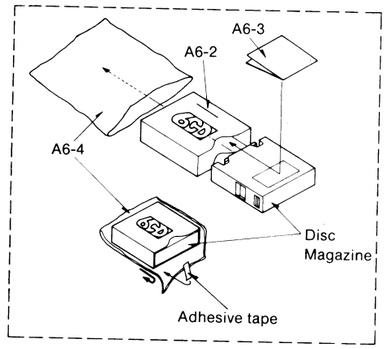
Unit

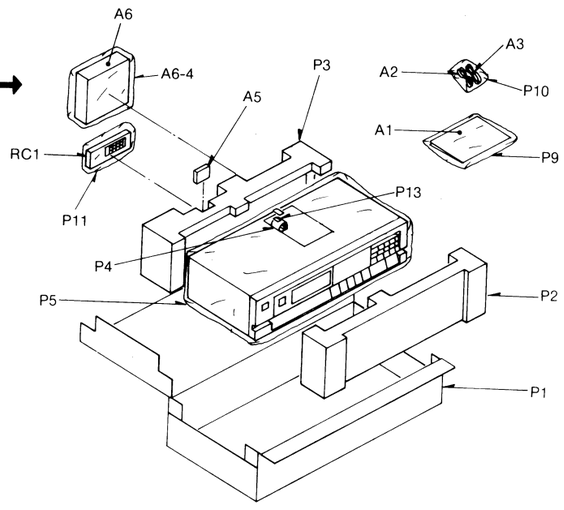


■ **TO PREVENT DAMAGE TO THE UNIT DURING TRANSPORTATION, THE DISC ELEVATION MECHANISM MUST BE SECURED AS FOLLOWS:**

1) Start play once, and then PRESS THE STOP BUTTON to return the disc elevation mechanism to the lower position. (When the disc elevation mechanism is in the upper position, it is impossible to secure it with screws.)
2) Remove the magazine.
3) Switch OFF the power and unplug the power cord.
4) Install the three short screws with spacers, the one long screw and the one short screw.
5) Pull the lock shaft to the OUT (locked) position.

Disc magazine





Ref. No.	Part No.	Description
PACKING MATERIAL		
P1 (E, EK, XL, EG) (EB, EH, EI) (XA, PA, PE)	SPND238	CARTON BOX
P1 (EF)	SPND239	CARTON BOX
P2	SPSD131	PAD(FRONT)
P3	SPSD132	PAD(BACK)
P4	SPPD13	PROTECTION BAG(UNIT)
P5	XZB60X50A01	PROTECTION COVER(UNIT)
P6	SFUMF01N16	CLAMPER
P7	XTV4+16JFYB	SCREW(CLAMPER)
P8	XSB4+55FYB	SCREW(RACK)
P9	XZB23X35C03	PROTECTION BAG(INST. BOOK)
P10	SMND17	SPACER
P11	SRHZJ02N01	PROTECTION BAG(REMOTE CONTROL)
P12	SHDD4-2	SCREW
ACCESSORIES		
A1 (E, EB, EH, EF) (XA)	SQXLP600C-KE	INSTRUCTION MANUAL
A1 (PA, PE)	SQXLP600CKPA	INSTRUCTION MANUAL
A1 (EK, XL)	SQX54483	INSTRUCTION MANUAL
A1 (EG)	SQX54484	INSTRUCTION MANUAL
A1 (EI)	SQX54485	INSTRUCTION MANUAL
A2 ⚠ (E, EG, EB, EH) (EF, EI)	SFDAC05E03	POWER CORD
A2 ⚠ (EK)	SFDAC05G02	POWER CORD
A2 ⚠ (XA, PA, PE)	SJA168	POWER CORD
A2 ⚠ (XL)	SJA173	POWER CORD
A3	SJP2249-1	OUTPUT CORD
A4 ⚠ (XA, PA, PE)	RJP120ZBS-H	AC PLUG ADAPTOR
A5	UM-3NE	BATTERY
A6 (E, EK, XL, EG) (EB, EH, EF) (EI)	SHRD141-Z	DISC MAGAZINE ASS'Y
A6 (XA, PA, PE) (PC, XB)	SHRD154-Z	DISC MAGAZINE
A6-1	SHRD109	DISC TRAY
A6-2	SHRD119	CARTON BOX(DISC MAGAZINE)
A6-3	SQZD32	INDEX LABEL
A6-4	XZB17X25C03	PROTECTION COVER(DISC MAGAZINE

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